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1995 - North Monterey County Hydrogeologic Study VOLUME I, Water Resource

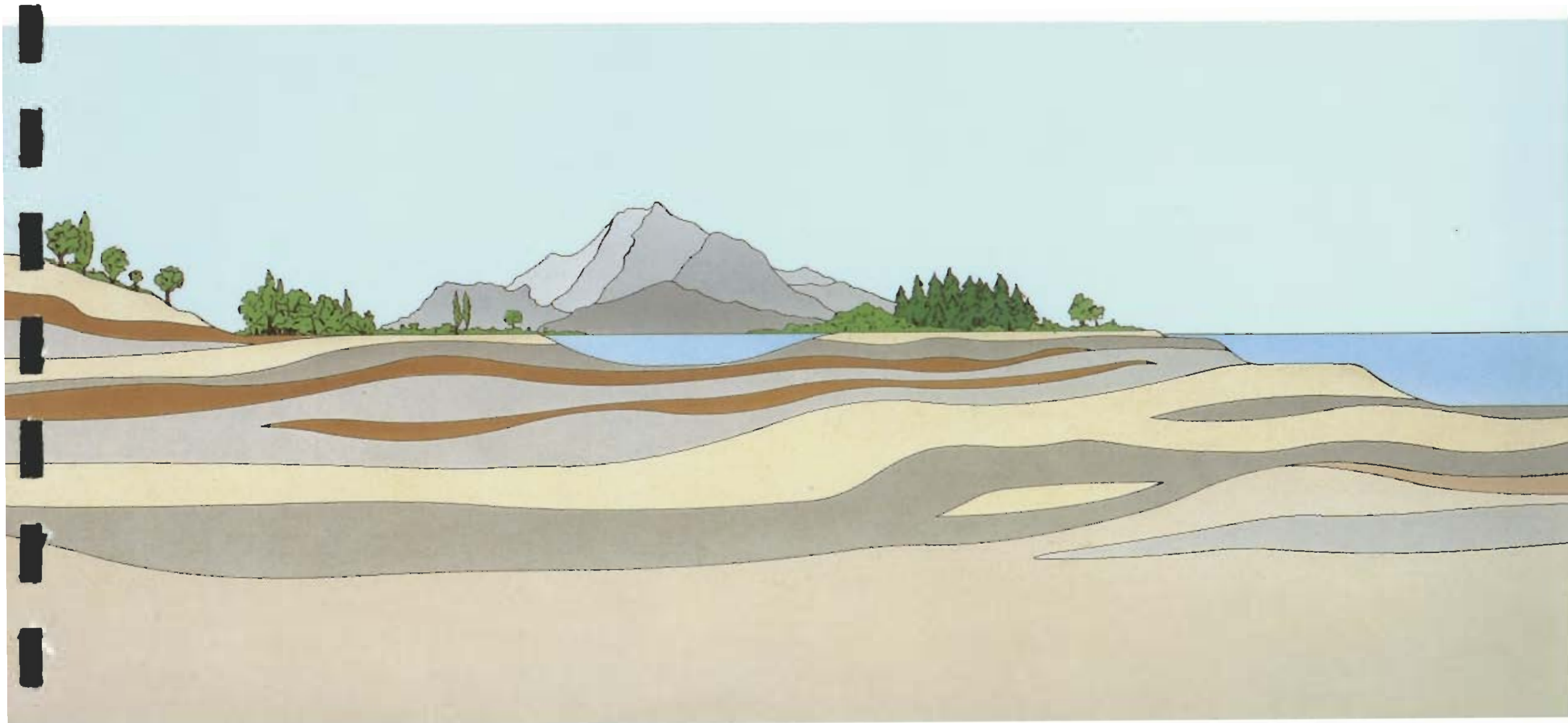
FUGRO WEST, INC.

NORTH MONTEREY COUNTY HYDROGEOLOGIC STUDY

Volume I
Water Resources

Prepared for:
MONTEREY COUNTY WATER RESOURCES AGENCY

October 1995



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October 19, 1995
Project No. 94-71-0160

Monterey County Water Resources Agency
855 East Laurel Drive
Salinas, California 93901

Attention: Mr. Matt Zidar

Subject: North Monterey County Hydrogeologic Study (Volume I), dated October 1995

Dear Mr. Zidar:

Fugro is pleased to submit the North Monterey County Hydrogeologic Study (Volume I). This has been a rewarding experience for us, as well as an enjoyable professional challenge. As you know, we are continuing our work on Volume II, the Critical Issues Report. We look forward to working with you toward the project's completion, and wish you continued success.

Sincerely,

FUGRO WEST, INC.

Martin B. Feeney, C.E.G.
Monterey Branch Manager

Chris W. Clark, JD, AICP

MBF:CWC:av

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ACRONYMS

AF/Y	-	Acre-Feet Per Year
A-N	-	Anderson-Nichols, Inc.
CALTRANS	-	California Department of Transportation
CPMD	-	California Public Works Department
DWR	-	California Department of Water Resources
GIS	-	Geographical Information System
IGSM	-	Integrated Ground and Surface Water Model
JMM	-	James M. Montgomery Engineers, Inc.
MCWRA	-	Monterey County Water Resources Agency
MDEH	-	Monterey County Division of Environmental Health
MSL	-	Mean Sea Level
MW	-	Montgomery Watson
PVWMA	-	Pajaro Valley Water Management Agency
TAC	-	Technical Advisory Committee
USGS	-	United States Geological Survey

INTRODUCTION

GENERAL STATEMENT

The purpose of this investigation is to develop a better understanding of the hydrogeologic setting in the North Monterey County (North County) area and to quantify the various components of water supply and demand. The investigation also focuses on the institutional and planning issues associated with the resource limitations and suggests possible responses to these limitations. The investigation is intended to provide the Monterey County Water Resources Agency (MCWRA), as well as the Monterey County Departments of Planning, Building & Inspection and Division of Environmental Health, with data essential to developing a ground water management plan and to support modifications to existing land use policies that may be required to assure a long-term water supply for the area.

The results of the investigation are presented in two volumes. This volume, Volume I, focuses on hydrogeologic issues, while Volume II addresses the planning/land use issues associated with the conclusions of the hydrogeologic evaluation. The hydrogeologic investigation includes the results of the hydrogeologic analysis, water budget analysis, and water quality analysis. The land use planning document includes an analysis of the land use, water demand, jurisdiction, and allocation issues, as well as a suggested scope of work for the Phase II portion of the study. Both reports are supported with maps developed by Fugro using the Agency's geographic information system (GIS) database.

BACKGROUND

Water supply in the North County area has been the focus of several previous studies; the most significant were performed by the State of California Public Works Department ([CPWD], 1952), State of California Department of Water Resources ([DWR], 1977), the United States Geological Survey ([USGS], draft 1980, final 1983), and the private consulting firm of Anderson-Nichols ([A-N], 1981). In addition, portions of the study area have been studied as part of larger regional studies of the Salinas ground water basin to the south and the Pajaro ground water basin to the north. Each of these larger basins has been the subject of ground water flow modeling efforts performed by James M. Montgomery ([JMM] now Montgomery Watson [MW]), each resulting in calibrated flow models of the respective basins. In addition to these larger studies, much of the study area has been investigated on a smaller scale through individual hydrology studies. These were previously required by the Monterey County subdivision ordinance.

The studies performed by CPWD and DWR both suggested that an area-wide overdraft was occurring in the North County area. The DWR report documented seawater intrusion and falling water levels in the area. The DWR report also included a review of possible supplemental water supply alternatives for the area, but concluded that no reasonable alternative existed. The USGS study verified the conclusions of the previous reports while providing an improved understanding of the hydrogeology of the area and further quantifying water demand, ground water storage, and recharge. The USGS report identified an area north and east of Prunedale to be particularly "water-short." The USGS survey also cautioned that additional residential and agricultural development would aggravate water shortages in the North County area.

Based on the findings of the USGS and DWR studies, along with complaints of water shortages by area residents, a temporary development moratorium was placed on this area in October 1980. In December 1980, A-N was retained to further investigate the moratorium area, and to develop possible water supply solutions and guidelines for further development. The A-N study confirmed the conclusions of the previous studies. Based on their work, A-N made recommendations including: 1) growth restrictions including no further subdivisions and no new discretionary permits for intensified water use, 2) adoption of a minimum lot size of 2 acres, 3) limitation of the number of households served by a single well, and 4) prohibition of the expansion of agricultural acreage. A-N subsequently completed a follow-up study (June 1981) that modified some of the planning units of the moratorium area and further refined recharge rates. Some of A-N's recommendations were adopted, and development in the area was conditioned on the performance of site-specific hydrology studies that focused on water supply availability and nitrate loading.

As a result of the USGS and A-N studies, the Monterey County of Board of Supervisors adopted a more permanent "B-8" moratorium in the Prunedale area in 1983. This land use designation prohibits further subdivision, allowing development only on existing lots of record. This land use designation is still in place in this portion of the study area.

Since the previous studies and the adoption of the modified land use and area plan within the Prunedale area, development in other surrounding areas has continued. Agricultural acreage has expanded, and some agricultural operations have shifted to more water-intensive crops. In particular, nursery, greenhouse, Christmas tree, and strawberry operations have expanded. Recent residential development in the area has further increased residential water demand in the area. Much of this residential development has been in the form of ranchettes and large custom homes that commonly include facilities for horses and livestock, which have further increased water demand.

As could be expected, water supply problems have continued to develop in the area. Many water wells in the area have required deepening to maintain production, and numerous wells have been replaced due to elevated nitrate ion concentrations. Near the coast, additional wells have been contaminated by seawater, requiring replacement, either with deeper wells or wells located further inland.

PURPOSE

In response to continuing concerns regarding water supply and quality and the desire to evaluate the area on a regional basis, Monterey County Ordinance 3496 was adopted in 1990. This ordinance eliminated the requirement for an individual hydrology report for new development projects in the area, requiring instead the payment of an impact fee that would fund a regional study of the water resources and water quality issues. The impact fees would be used to fund a two part study; the initial phase being a hydrogeologic investigation and issues identification, the second phase being the development of a ground water management plan.

This investigation represents phase one of the scheduled study. The investigation evaluates the North County area water supply and quality conditions, area hydrogeology, water demand, and current land use issues. Particularly, this investigation focuses on the following:

- Evaluation of the appropriateness of the current planning subareas based on the understanding of the area hydrogeology, and designation of new subareas, where appropriate.
- Definition of overlapping jurisdictional boundaries between the Salinas and Pajaro basins, and the relationship of the study area to each of these.
- Assessment of current conditions. Quantification of the total and usable volume of ground water in storage, recharge, current water levels, and current water quality problems.
- Quantification of current and future water demand under several build-out scenarios.
- Comparison of the current land use plan and regulations for the area balanced with existing water resources, and presentation of suggestions to achieve a water balance in the area.

SCOPE AND AUTHORIZATION

The scope of work for the project was developed in response to a Request for Proposal prepared by the Agency in January 1994. The scope of work was accepted and, after contract documents were processed, notice to proceed was issued by the Agency in May 1994. As performed, the work included:

- Collection and review of relevant geologic and hydrogeologic previous reports and studies on the study area. The reviewed documents, whether or not specifically cited, are listed in the references.

- Acquisition and implementation of the Pajaro Valley Water Management Agency (PVWMA) and Agency water level and water quality databases. Preparation of water level and chemical concentration hydrographs for all study wells in the area with sufficient data.

- Collection of additional water level data from key wells throughout the study area and the preparation of water level surface maps.

- Construction of two monitoring wells clusters, each consisting of a shallow and deep completion.

- Review of existing well log data and other geophysical and geologic data, and the preparation of geologic cross-sections depicting the hydrostratigraphic relationships in the study area.

- Analysis of the components of water supply through the linkage of the two existing ground water models of the Salinas and Pajaro basins.

- Field checking and updating of land-use data within the study area.

- Estimation of water demand under current and various future land use scenarios.

Work was performed in a manner to utilize and be compatible with the Agency's existing databases and GIS. Data generated as part of the investigation are presented in a format that is usable to the Agency and will serve to populate the various developing databases of hydrogeologic, hydrologic, and geographic information. Fugro prepared maps and digital data "layers" to support the study including land use, parcels, soils, water systems, zoning, surficial geology, and others. A parcel-level model was developed by Fugro utilizing ARC/INFO GIS software allowing calculations of water demand and nitrogen loading for the present and future levels of development. Numerous maps were developed to present and support study findings. The various components of the database, the GIS model, layer documentation, and ARC/INFO Macro Language of the maps have been transmitted under separate cover.

FINDINGS AND ANALYSIS

AREA OF INVESTIGATION

The study area is formally defined in Monterey County Ordinance No. 3496 as the area investigated by the USGS in the 1983 report entitled *Ground Water in North Monterey County, California, 1980.* The roughly 54,000-acre area is generally bounded by the Pajaro River on the north, the San Benito-Monterey County line on the east, Blackie Road on the south, and the

Southern Pacific Railroad line, Elkhorn Slough (Slough), and Monterey Bay on the west. The City of Watsonville lies directly north of the study area, across the Pajaro River, while the community of Castroville lies just outside the area's southwest boundary. The area is predominantly hilly, comprised of stable deposits of mature coastal dunes that are locally dissected by minor drainages. The central westerly portion of the study area is dominated by the Slough, a brackish to salt water estuary. The eastern portion, toward the San Benito County line, is a prominent ridge of uplifted granite. The study area is shown on Figure 1 - Study Area Boundaries.

The study area overlies a portion of both the Salinas and Pajaro ground water basins and includes the area between the adopted boundaries of these two basins. Although the study area is entirely within Monterey County, ground water management activities and authority in the study area are divided between the PVWMA and the Agency, which manage the water resources of the Pajaro and Salinas Valley ground water basins, respectively. The boundary between these two agencies is also shown on Figure 1.

REGIONAL GEOLOGY

The regional geology of Monterey Bay has been addressed in several previous investigations (Allen, 1946; Dupre, 1975; Tinsley, 1975; and Schwartz, 1986). These studies have resulted in relative agreement regarding the surficial geology of the area. Clark and Reitman (1973), Dibblee (unpublished), and Dupre and Tinsley (1980) have prepared the most complete geologic maps of the area. These maps were utilized to create the GIS layer presented as part of Figure 2 - North County Geology. The study area is a geologically complex area resulting from the Pleistocene interactions of fluvial-estuarian depositional environments of the ancestral Salinas, Pajaro, and San Benito Rivers, with regional eolian and marine depositional environments. The recent sediments in the area are underlain by Tertiary age consolidated rocks at varying depths. The entire sequence is underlain by a granitic basement, which is locally exposed in the study area. The generalized geologic setting and stratigraphy are presented on Figure 2.

The basement rocks in the study area consist of Mesozoic "Salinian Block" granite that are exposed along a ridge on the western side of the Vergeles fault, approximately 5 miles northeast of Prunedale. Directly to the northeast, across the Vergeles fault, granitic basement is juxtaposed against deformed Tertiary volcanic and sedimentary rocks of the Pinecate and San Juan Bautista Formations (Clark and Reitman, 1973). Southwest of the granitic ridge exposure, the basement is inferred to dip at approximately 7 degrees toward the Monterey Bay based on contoured well log data. Localized erosional knolls and valleys occur across the buried granitic surface (M. Johnson, 1983).

Figure 1

STUDY AREA BOUNDARIES

- Study Area
- Study Area Boundary
- County Line
- PVWMA Boundaries
- Township and Range Grid

MILES
0 1.25 2.5

Source: MCWRA

North Monterey County Hydrogeologic Study

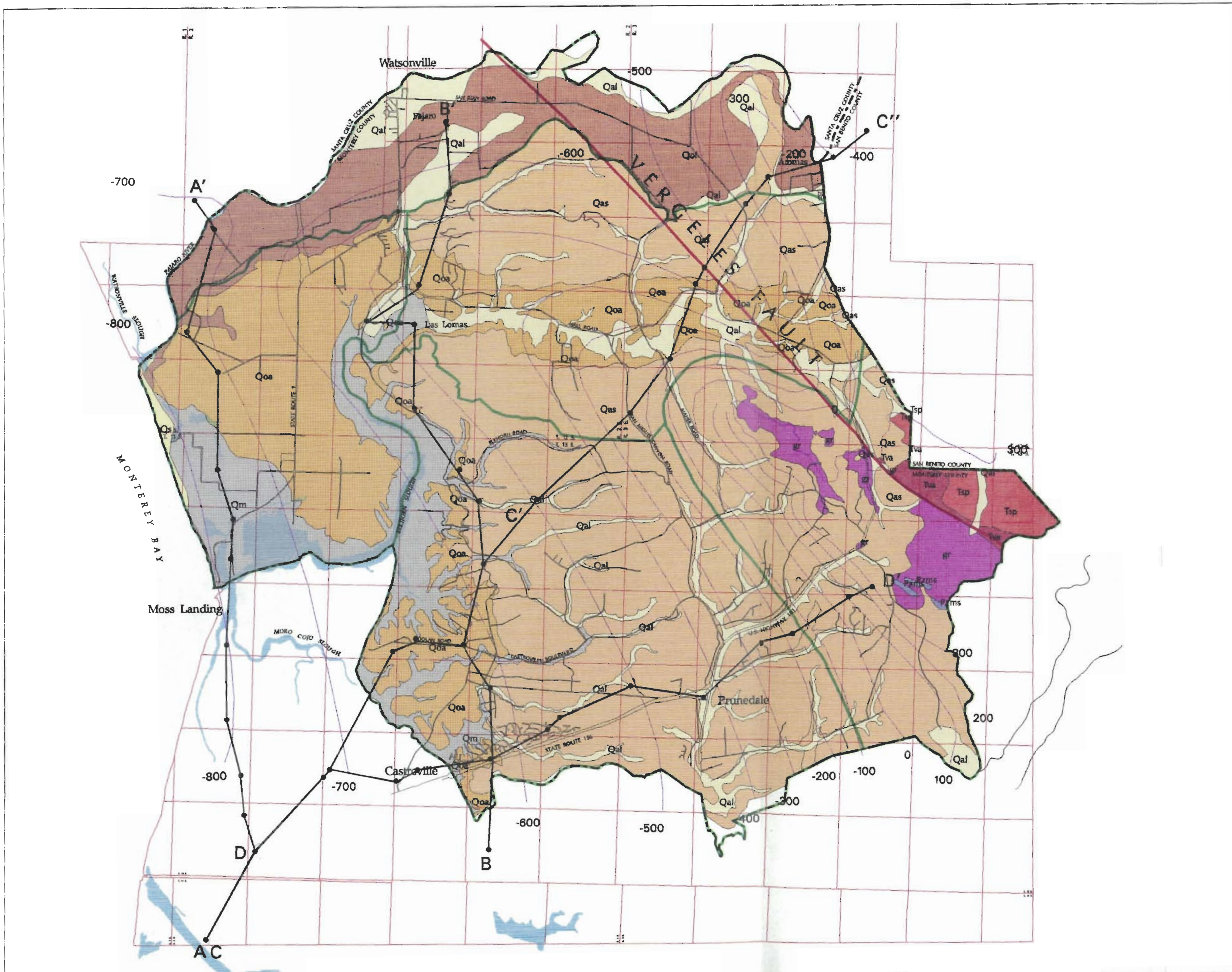

Figure 2

NORTH COUNTY GEOLOGY

- Qal - Alluvium
- Qas - Aromas Sand
- Qm - Marshland clay mud
- Qoa - Older Alluvium
- Qof - Older Floodplain
- Qs - Sand Dunes
- Tsp - Pinecate Formation
- Tva - Volcanic rock
- gr - Granitic rock
- Pzms - Meta Sediments
- Structure Contours
- Faults
- Cross Sections
- Wells Used in Cross Sections
- Subarea Boundaries
- County Line
- Township and Range Grid

MILES

0 1.25 2.5

Sources: MCWRA, Dibblee, T.W.

North Monterey County Hydrogeologic Study

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MONTEREY COUNTY CALIFORNIA 1850

The Tertiary San Juan Bautista and Pinecate Formations flank the southwestern edge of the granitic basement at depth (approximately -3,000 feet elevation) and thicken toward the coast. A relatively thick sequence of these units was deposited in the ancient Pajaro Gorge, a relic canyon carved into the granitic basement surface to a depth of approximately 7,500 feet below the modern Slough (Schwartz, 1986). The Pinecate Formation is unconformably overlain by approximately 1,000 feet of Miocene age Monterey Shale. With the exception of the fractured granitic basement, which locally yields limited amounts of ground water from near the surface in the granitic ridge area, most of these pre-Pliocene formations within the study area are not a significant ground water resource.

Shallower, post-Miocene unconsolidated formations represent the primary ground water resources in the area. The oldest of these formations comprise the poorly consolidated marine sandstone, siltstone, and claystone beds of the Pliocene Purisima Formation. The Purisima Formation overlies the Monterey Shale, both of which pinch-out against the granitic ridge and become thicker and deeper towards the Monterey Bay. Over most of the study area, the top of the Purisima Formation exists at elevations of approximately -600 feet inland to greater than -800 feet near the coast (Johnson, 1983). The Purisima Formation is not exposed in the study area; therefore, recharge of that formation is controlled by infiltration through the overlying Aromas Sand.

The Pleistocene age Aromas Sand unconformably overlies the Purisima Formation and is exposed over most of the study area. Similar to the Purisima Formation, the Aromas thickens coastward. The depositional history of the Aromas Sand is complex and is discussed in detail in the following section. In the northern and southern portions of the study area adjacent to the Pajaro and Salinas Basins, the Aromas Sand consists of predominantly fluvial and eolian deposits; whereas, in the granitic ridge area, these fluvial units pinch-out and give way to solely eolian deposits, which lie directly upon granitic basement.

The Aromas Sand is locally overlain by more recent alluvial deposits. Recent alluvium is present in the more established drainages, and terrace deposits cap the Springfield Terrace and line the Carneros, Pajaro, and Salinas drainages.

Depositional History

The depositional history of the Monterey Bay region has significant bearing on the delineation and understanding of the various aquifer units in the study area, the interaction of these aquifer units, and the relationships of these units to the adjacent ground water systems of the Pajaro and Salinas Valleys. Studies prepared by Dupre and Tinsley, both individually and jointly (Dupre [1975, 1990], Tinsley [1975], and Dupre and Tinsley [1980]) are most relevant to the understanding the depositional history of the study area. The reader is especially directed to the respective dissertations of these investigators, the former's dissertation being focused on the

Pajaro basin and the latter on the Salinas basin. Taken together, these documents provide a thorough analysis of the recent geologic history of the study area. Understanding the depositional environment is fundamental in understanding the hydrogeology of the area and the relationship of the study area to the adjacent areas.

In the early Pliocene, the primary hydraulic connection between the San Joaquin Valley and the Pacific Ocean is believed to have existed within the Santa Cruz Basin (Dupre, 1990). The Santa Cruz Basin extended along the northeast side of the Gabilan Range (the northern extent of which comprises the granitic ridge in the study area) through the Santa Cruz Mountains. Throughout the late Pliocene, this basin received generally coarse-grained sediments, which became the upper Purisima Formation. South of the ancestral Santa Cruz Basin, to the west of the granitic ridge, the upper Purisima Formation consisted of relatively less permeable marine silt, clay, and fine sand units, suggesting deposition outside of the main drainage. In the southern portion of the study area, the upper Purisima Formation is believed to intertongue with the deposits that comprise the 400-foot aquifer of the Salinas Valley. The 400-foot aquifer has been interpreted to consist of continental deposits associated with the lower Paso Robles Formation (Johnson, 1983; Thorup, 1976; Yates; 1988).

Subsequent uplift of the Santa Cruz Mountains in the late Pliocene-early Pleistocene segmented the Santa Cruz Basin to form the Watsonville (Pajaro) Basin that currently flanks the northern margin of the study areas (Dupre, 1990). The Purisima Formation in the Watsonville area was also uplifted at that time and subjected to coastal erosion.

The Aromas Sand unconformably overlies the Purisima Formation. The Aromas Sand includes an interfingering sequence of genetically related suites of fluvial, marine, and eolian deposits. Dupre (1975) observed evidence for at least 11 Quaternary glacio-eustatic cycles within the Aromas. As such, the Quaternary depositional history and, hence, aquifer delineation in the study area, is similarly complex.

The complexity of the Aromas Formation can be simplified within the context of Dupre's (1975) depositional model for stable or subsiding coastal platforms. According to Dupre's model, stable or subsiding regions would receive fining-upward sequences of fluvial and estuarine sediments during periods of rising sea level (transgression). During periods of declining sea level, river valleys in these regions are subject to fluvial dissection, while eolian and littoral marine sediments are deposited in other areas.

Geologic Cross-Sections

Drilling logs from the study area were compiled for the purposes of constructing Geologic Cross-Sections A-A' through D-D' presented on Figures 3 through 6, respectively. Drilling logs were also utilized to update the structural contours on the base of the Quaternary deposits prepared by Johnson (1983), which are presented on Figure 2. The cross-section locations are also shown on Figure 2.

Dupre's (1975) model for coastal sedimentation on stable and subsiding platforms was applied in the interpretation of the cross-sections. In applying this model to the study area, one would anticipate that the Pajaro and Salinas Valleys, both regions of subsidence, would be subject to fluvial dissection during regressional events, and fining-upward fluvial-estuarine sedimentation during transgressional events. Areas away from fluvial influence would receive predominantly eolian and marine deposits during regressional events, and relatively quiet-water marine estuarine deposits during transgressional events.

Geologic relationships in the study area confirm the appropriateness of this model. The Aromas Sand in the Pajaro Basin (shown in Geologic Cross-Sections A-A' and B-B') is comprised of fluvial sands and gravel that were deposited in the ancient Pajaro/San Benito River drainages as a result of fluvial aggradation. Toward the central portion of the study area, these fluvial deposits interfinger with eolian deposits and marine silt and clay embayments that flank the west side of the stable granitic ridge. To the south, these embayments appear to interfinger with the fluvial deposits comprising the upper Paso Robles Formation in the Pressure Area of the Salinas Valley (Johnson, 1983). To the east, these marine embayments appear to pinch out against the granitic ridge (see Geologic Cross-Sections C-C' and D-D') and give way to predominantly eolian deposition. Here, ancient dune deposits in the Aromas directly overlie a 100- to 200-foot-thick section of weathered granite composed of granitic gravel, clay, and sand (Johnson, 1983). A schematic of the various geomorphic areas of the study area is presented on Figure 7 - Geomorphic Setting.

Dupre's (1975) depositional model implies that the youngest alluvial deposits occur in the lower valleys, whereas older deposits are preserved in adjacent fluvial terraces. Evidence of this is exhibited adjacent to the Salinas, Pajaro, and Elkhorn Valleys where older Aromas Formation dune and fluvial terrace deposits have been cut by the ancestral Salinas, Pajaro, and San Benito River systems (Hall and Lettis, 1991). The Springfield Terrace has been cut by all three of these drainages. Similarly, terraces have been formed by the ancestral Salinas River along the north-eastern margin of the Salinas Valley, and by the Pajaro River along the south side of the Pajaro Basin (Dupre and Tinsley, 1980).

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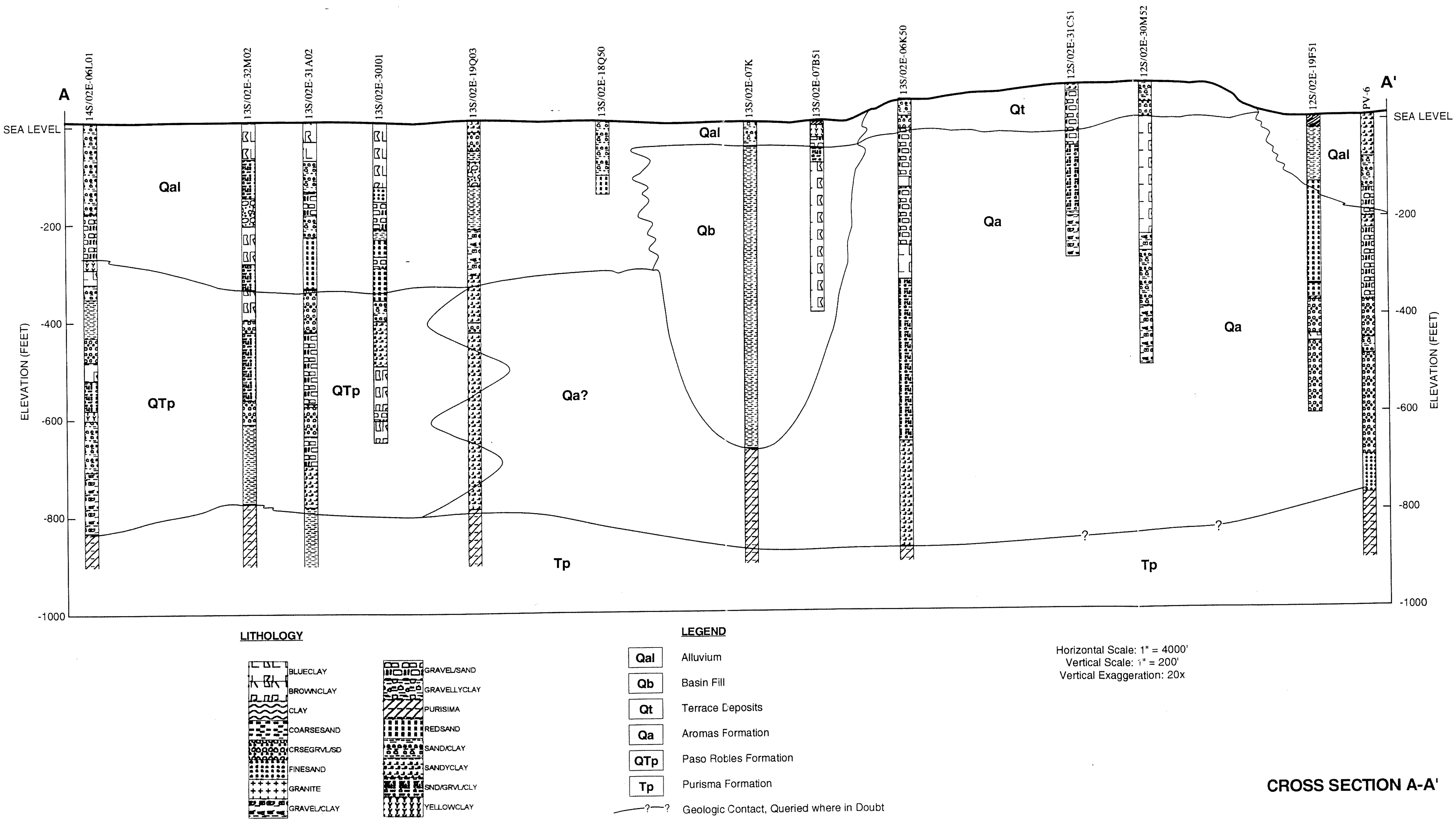

CROSS SECTION A-A'

FIGURE 3

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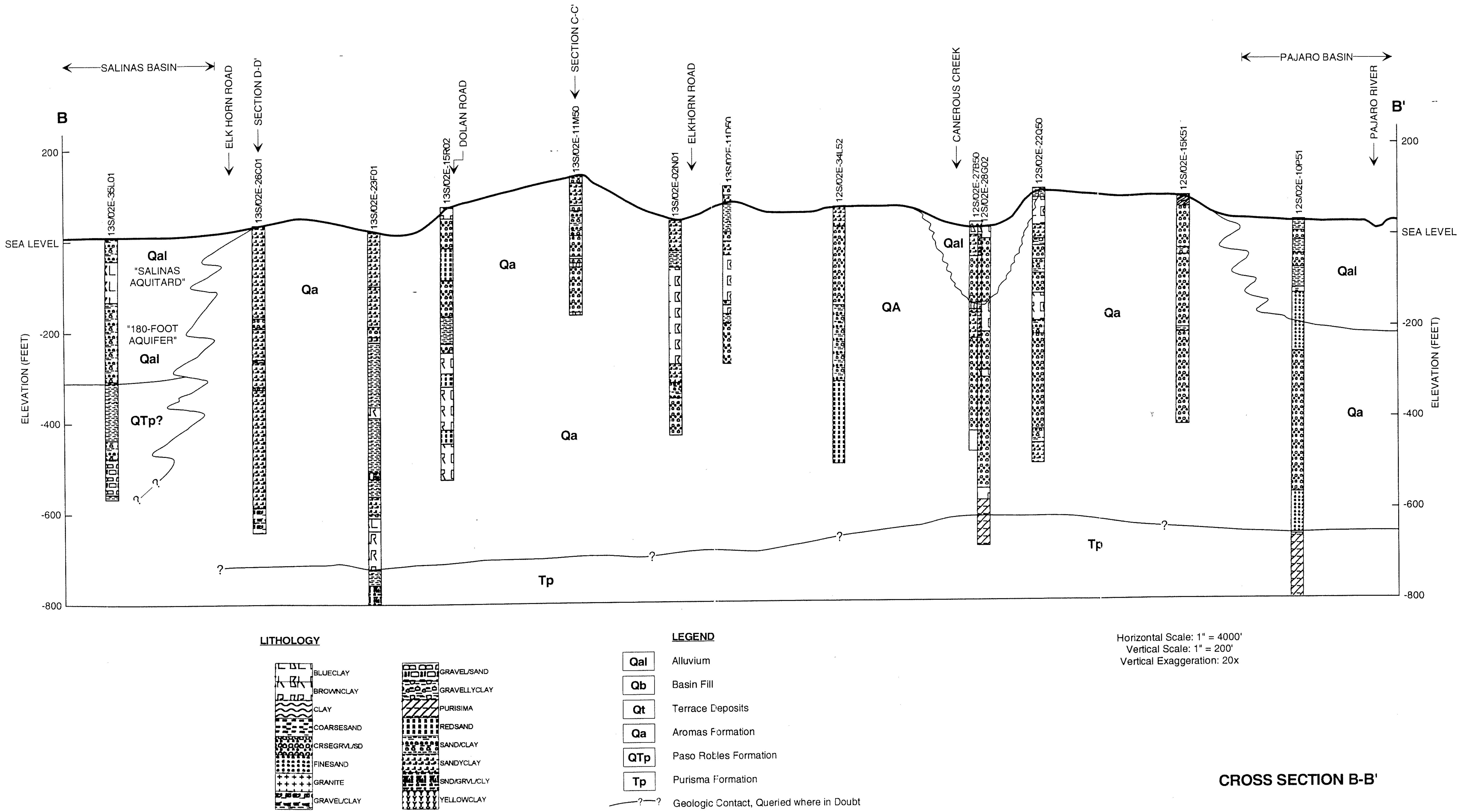

CROSS SECTION B-B'

FIGURE 4

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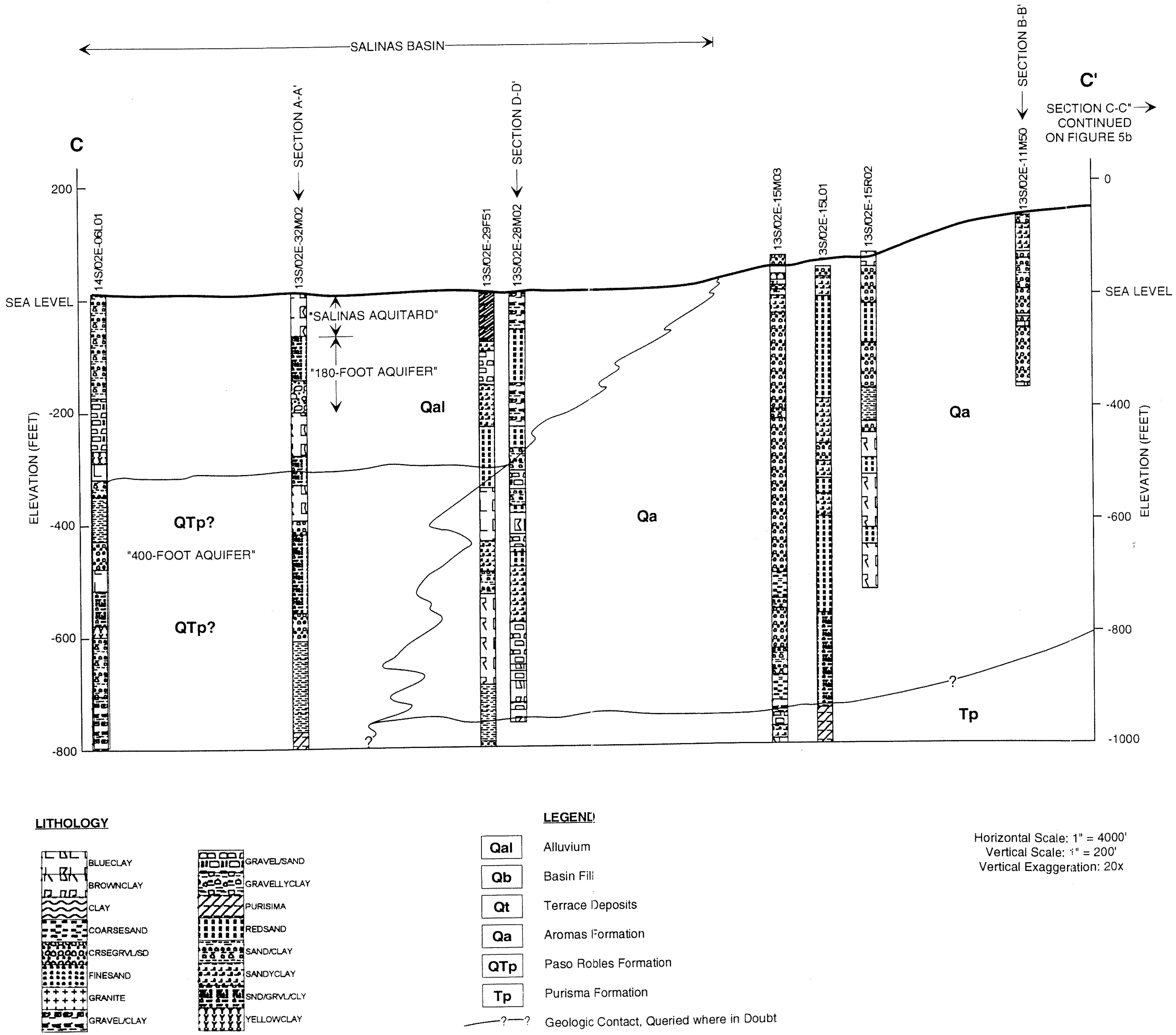

CROSS SECTION C-C"

FIGURE 5a

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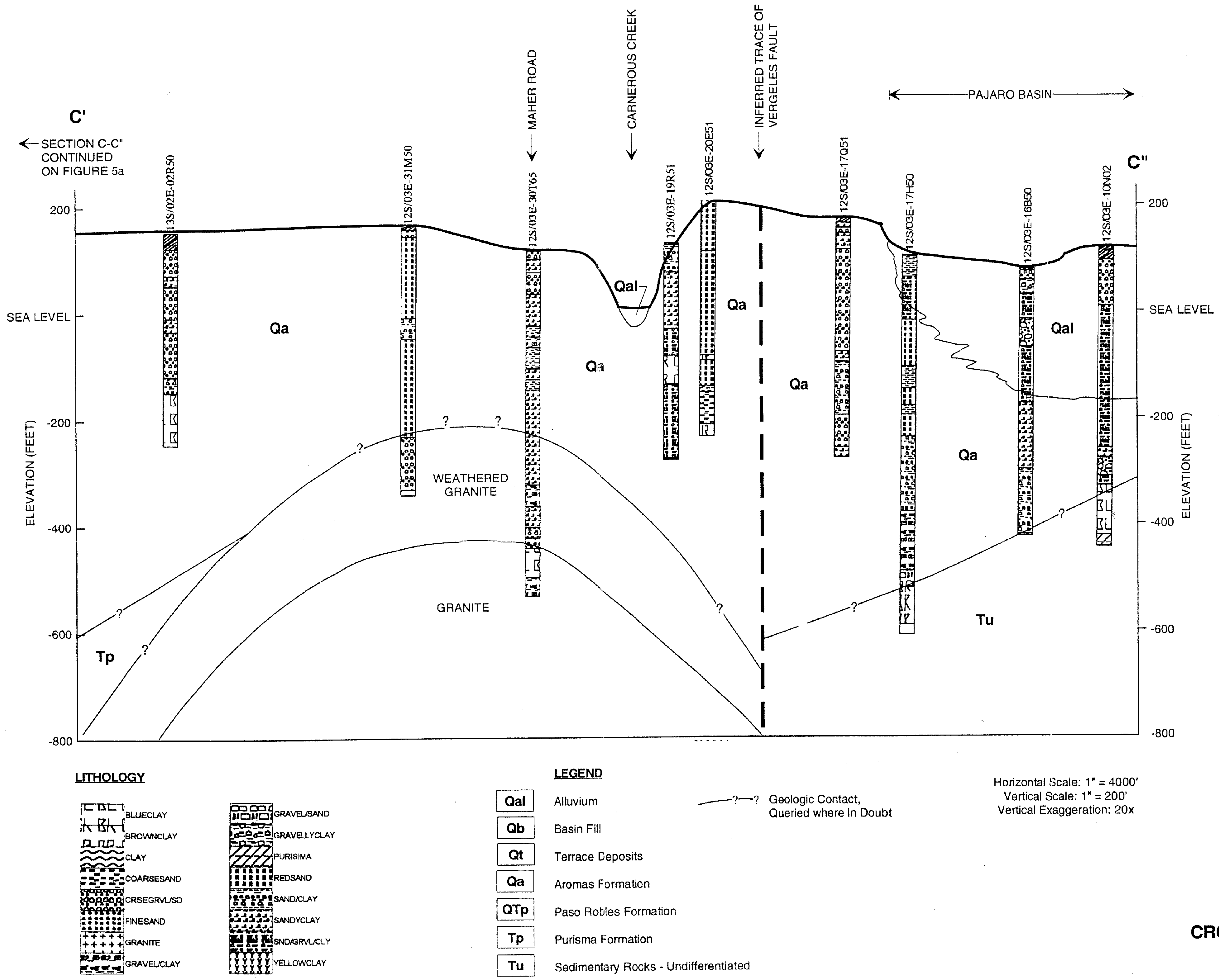

CROSS SECTION C-C"
(Continued)

FIGURE 5b

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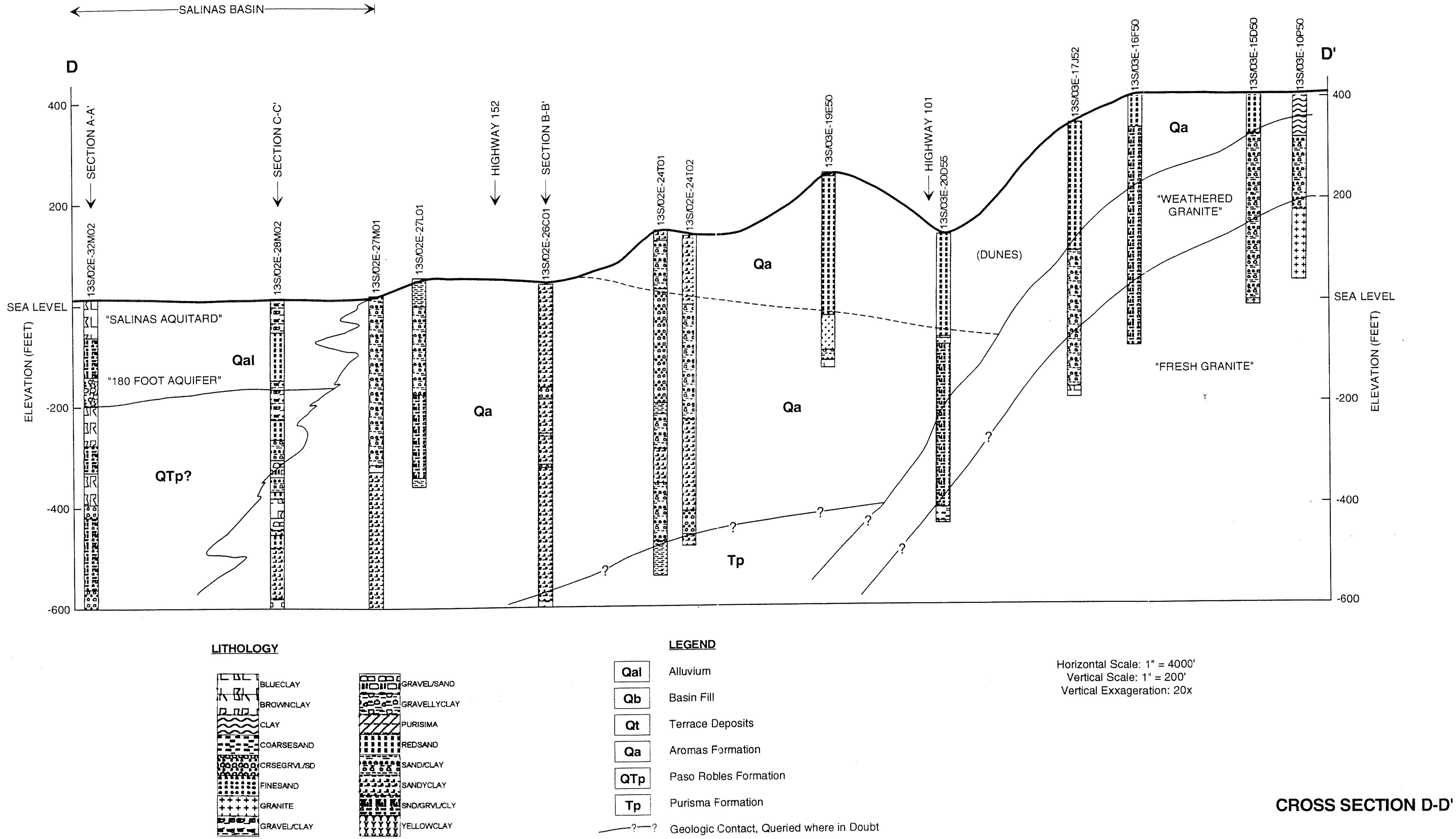
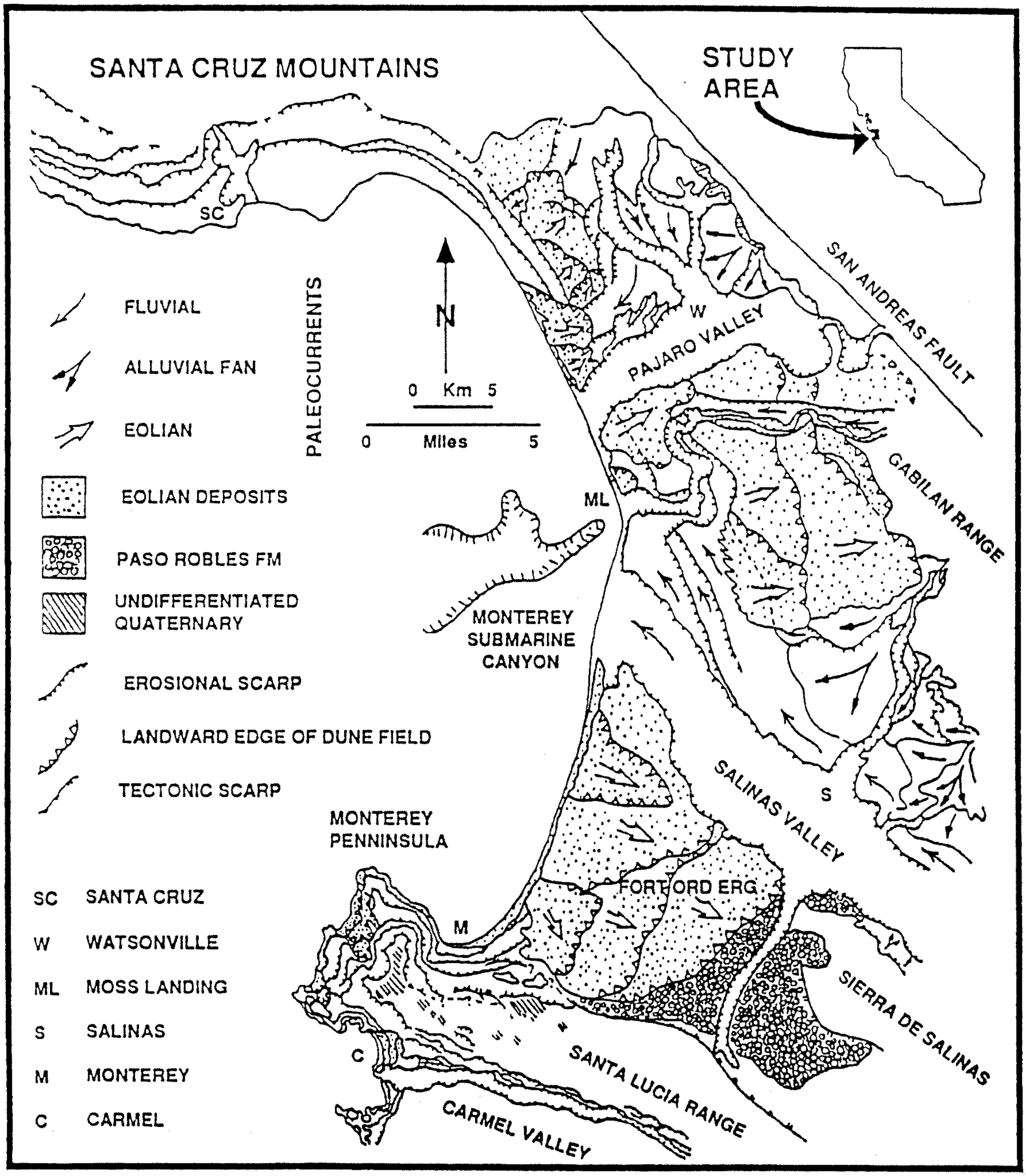


CROSS SECTION D-D'

FIGURE 6



GEOMORPHIC SETTING
North Monterey County
Hydrogeologic Study

FIGURE 7

The Elkhorn Valley is the older of these recently dissected drainage features. The Elkhorn Valley occupies the east-west lineament between the San Juan Road-U.S. Highway 101 interchange and the Slough. Dissection of the valley appears to have been relatively rapid as evidenced by numerous hanging drainages along San Juan, Carpenteria, San Miguel Canyon, Vida, and Elkhorn Roads (Jenkins, 1973). Movement along the San Andreas system was likely responsible for diverting the San Benito River southward into the Elkhorn Valley, resulting in dissection during the late Pleistocene (Dupre, 1990).

Subsequent inundation of the Elkhorn Valley resulted in the accumulation of approximately 600 feet of alluvial clay within the canyon near the coast (Geologic Cross-Section A-A'). This clay forms a "mud plug", which is believed to restrict flow between the ground water systems of the Pajaro and Salinas Valleys (DWR, 1977). The thick mud plug thins to less than 150 feet 2 miles inland from the coast (Johnson, 1983). Here, the clay interfingers with fluvial and alluvial sand and gravel which comprise the remainder of the Elkhorn Valley fill.

The alluvial clay and fluvial infill in the Elkhorn Valley are believed to have been deposited during an overall transgressive cycle, after which the drainage was abandoned, accounting for the thick accumulation of alluvial clay fill in the coastal inlet void of major fluvial influence. Similarly, recent transgression was likely responsible for aggradation of fluvial-estuarine and, subsequently, alluvial sediments, in the active Salinas and Pajaro Basins. That most recent transgressional event probably aggraded the fluvial sediments that comprise the 180-foot aquifer in the Salinas Basin (Tinsley, 1975) and the "Upper Aquifer" in the Pajaro Valley (Dupre, 1990).

HYDROGEOLOGY

General Statement

Hydrogeologic evaluation included both hydrogeologic field work and data review and analysis. Hydrogeologic field work included a limited well inventory, water level measurements, water quality sampling, and geologic mapping. Data reviewed included existing well logs, geologic literature, and previous studies. Data were utilized for refining hydrostratigraphy, revising study area subareas, and assessing current conditions. After review of the data, locations for monitoring wells, additional sampling and aquifer testing were selected to fill data gaps. The monitoring well construction/exploration program is documented in Appendix A - Hydrogeologic Exploration Program.

Generalized Hydrogeologic Setting

The study area is not a discrete ground water basin but, rather, several transitional zones between areas of differing hydrogeology. Few discrete boundaries exist in the study areas because most of the changes between areas are transitional. Regardless, there is some basis for the division of the area into subareas based on hydrogeology and geomorphic features.

The northernmost portion of the study area is within the Pajaro Valley ground water basin and consists of the bottom land adjacent to the Pajaro River and those areas underlain by the Pajaro River alluvium. The elevated central portion of the study area is the area that is bounded to the north and south by the Pajaro and Salinas alluvial ground water basins, respectively. These filled alluvial valleys, to the north and south, were incised into an older sedimentary sequence of lesser permeable materials (Aromas Sand and Paso Robles Formation) that remain in the central portions of the study area. The boundaries between the valley alluvium and the older sediments are inferred to be relatively sharp. However, the boundaries only affect ground water flow in the sense that the boundaries likely represent a decrease in permeability from the higher values for the valley alluvium to the lesser, but still relatively high, permeability values of the Aromas Sand and Paso Robles members.

The eastern part of the study area is characterized as a transition from sedimentary to crystalline rock hydrogeology. The transition from west to east is gradual, with the thickness of overlying sediments decreasing with increasing distance eastward, giving way to a weathered zone of varying thickness on the granitic bedrock surface.

Although the underlying sedimentary section of the Springfield Terrace area is similar to the area to the east, the Springfield Terrace is distinguished from the adjacent areas by a hydraulic barrier comprised of the low permeability fill of the ancestral Elkhorn Valley that separates this area from adjacent areas. As discussed above, the depth of the fill has been documented to be as great as 600 feet in the area near Moss Landing and, in this area, represents a significant barrier to north-south ground water flow. Whether or not the filled ancestral canyon continues to have a significant affect on east-west ground water flow in the upper portions is unknown because specific data of the depth of the fill in the upper portions of the ancestral canyon are not available.

Aquifer Delineation/Hydrostratigraphy

The geologic setting and depositional history discussed above assist in the definition of aquifer units and the hydrostratigraphy of the study area. Aquifer delineation in the study area is best approached within the context of the geologic depositional history of the area. Based on the available geologic and well completion data the geologic materials in the study area can be aggregated into five generalized water-bearing units. These are: 1) Purisima Formation, 2) various units within the Aromas Sand, 3) weathered and fractured granite, 4) various perched aquifers and terrace deposits, and, 5) members of the Pajaro Valley alluvium sequence. As will be discussed further below, the distribution of these units assist with the refinement of hydrogeologic subareas. Each of the aquifer units is discussed below:

Purisima Formation. As discussed above, the Purisima Formation is a sequence of semi-consolidated sediments consisting of units of fine sand, clay and silt. The USGS, in the 1983 report, suggested that development of water supplies in the Purisima might represent a partial solution to the water supply problems in the area. The USGS cautioned, however, that not much was known about the water bearing properties of the formation in the study area and that the proximity to the ocean and remoteness to a source of recharge were limiting.

Whereas the Purisima has been proven as an aquifer in the northern portion of the Pajaro area and in the Soquel area, success with the wells completed in the Purisima in the study area to date has been limited. Approximately 15 water wells in the study area are interpreted to have encountered the Purisima Formation. Specific data of the aquifer properties of this formation are limited because few of the wells that have been drilled and completed into the Purisima are completed solely in this formation. In general, attempts to develop water supply from this formation have resulted in limited well yields (although in some cases discharge rates have been high due to available drawdown) and marginal water quality (elevated sodium adsorption ratios). The differences in the success of wells in the Purisima between the areas to the north and in the study area derives from the differences in the geology and hydrogeology. In the study area, the Purisima is finer-grained, limiting well yield. Additionally, the Purisima is not exposed in or near the study area, likely reducing the potential for completely flushing the formation of saline connate fluids, resulting in poor water quality.

To date, the Purisima Formation remains not proved as a viable aquifer. However, regardless of the whether the Purisima Formation can be effectively developed as a source of water, the lack of local recharge to the aquifer in the study area implies that the water from the Purisima would not constitute a new water source. Rather, it is either storage depletion or leakage from the overlying Aromas Formation.

Aromas Formation. As discussed above, the Aromas Sand is a complex aggregation of materials that have been deposited in varied and localized depositional environments. The lithology of the Aromas Sand reflects this variation locally, displaying sequences of blue marine clays, coarse sand and gravel, and well-sorted dune sand. Stratigraphic correlations between specific lithologic units over any significant distance are difficult, although some regional trends consistent with the depositional model discussed above are apparent. Near the coast, the lithology of the Aromas displays more marine and fluvial influence, typified by the blue clays and fluvial deposits. Moving eastward, the lithology is dominated by eolin deposits with occasional interbeds of fluvial deposits (Dupre, 1975).

Previous investigators have suggested that the Aromas Sand could be differentiated into an upper and lower member (DWR, 1977). This differentiation was based on review of several geophysical logs in the Moss Landing area that suggested the occurrence of a laterally continuous clay zone. However, while the data from the Moss Landing area do suggest a low permeability section that appears correlatable between proximate wells in this area, the available data do not appear to support the designation of distinct upper and lower members in other portions of the study area. Similar conclusions were reached by both Esmaili and Associates (1978) and A-N (1981) who also suggested the subdivision to be supported only in the southwestern portion of the study area.

The Aromas Sand aquifer in the study area is, therefore, generally characterized as a sequence of interbedded sand, clay and gravel displaying localized variations. Well yields are relatively high and are a function of the local saturated thickness and lithology. Ground water in the Aromas Sands occurs generally under unconfined to semiconfined conditions, with the degree of confinement increasing with depth. Recharge to the Aromas Sand results almost entirely from the infiltration of precipitation.

Granite Aquifer System. In the eastern portion of the study area, the ground water system is comprised of a sequence of weathered granite that grades, with increasing depth, to fresh granite. The characteristics of this aquifer system are varied, and reflect the transition from primary to secondary porosity (primary porosity being the space between individual grains, secondary porosity being other voids in rock mass). Granite (a solid of interlocking crystals) weathers to a loosely consolidated agglomeration of sand and gravel within a clay matrix. Ground water is stored and moves through the pore spaces within the weathered granite. The degree of porosity is a function of the degree and nature of the weathering process. In contrast, unweathered granite has no (significant) porosity, and water is stored and moves solely through fractures within the rock mass. The variations in well yields and performance in the areas relying on the granite aquifer system generally result from these conditions. The yield of wells completed in the weathered granite are a function of saturated thickness and the permeability of the weathered granite and are usually significantly higher than wells completed in fresh granite. The yield of wells completed in the fresh granite are typically low and completely dependent on the number of fractures intersected by the well bore and the degree of connectivity of the fractures to each other and a source of recharge.

Pajaro Valley Alluvium. The Pajaro Valley floor is covered with recent alluvium deposited by the Pajaro River. The alluvium consists of a sequence of sand, clay and gravel approximately 200 to 300 feet thick overlying the Aromas Sand. The depositional sequence of sand, gravel and clay have been influenced by sea level variations and has resulted in the designation of a confining layer and upper and lower alluvial aquifers, similar to the Salinas Aquitard and the 180- and 400-foot aquifers in the Salinas Valley. The Pajaro Valley Alluvium comprises a productive aquifer supporting highly productive wells.

Perched Aquifers. In addition to the regional aquifer systems, the central portion of the study area contains numerous small, localized "perched" aquifer systems. These systems are the result of infiltrating water collecting (perching) above the regional water table on discontinuous horizontal strata of low permeability within the Aromas. Water level data evidences the occurrence of these perched systems throughout the area. Perched water data available in MCWRA database are presented. Other data is anecdotal and documented in N.Johnson's 1988 report as cited. These data document water surface elevations significantly higher (occasionally 100's of feet) than the regional water table. N. Johnson (1988) suggested the possibility of regional perched zones at elevations of 180, 310 and 400 feet in elevation, based on both well water level and spring elevations. The occurrence of this regional system was considered to reflect possible regional paleosoil horizons.

Although the perched aquifers have historically been a viable source of water for domestic users, the lateral extent of these aquifers is limited. The small size of these systems results in a low volume of ground water in storage. This limited storage can lead to wells failing during drought conditions and elevated concentrations of accumulated contaminants such as nitrate ions. Water quality data from perched wells are discussed in the Water Quality Section 3.0. Because of the number, limited extent and random occurrence of these localized aquifer systems, they were not mapped for the purposes of this study. For the same reasons, the number of persons relying on these aquifers, while significant, is difficult to quantify. Populations relying on these perched aquifers are, therefore, subject to an increased risk of both water quantity and quality problems.

Ground Water Use and Development

All water supply in the study area is derived from ground water. No consistent long-term beneficial use of surface water is documented. Water for agricultural irrigation is supplied by on-farm wells. Residential and municipal supplies are provided either through individual domestic wells or through small water systems consisting of two or more connections. Review of the Agency database reveals records of construction of more that 2,500 wells. Experience in other counties suggested as many as 25 percent of all existing wells are not documented. The total number of wells in the study area may be as high as 3,100. The number of wells is discussed to demonstate the difficulty of creating a distribution system. Water well records available from the Agency were compiled into a database. The database includes, where available, drill method, elevation, casing size, depth, and location of perforations. The database was supplemented with other data, as available. The database is included as Appendix B - North County Water Well Database.

Water Systems. Most of the residential development in the study area is served by various sized water distribution systems that derive their supply from ground water. A water system consists of a distribution system that serves more than one parcel. In Monterey County, water systems are categorized by the number of connections. Systems with greater than 200 connections are considered "large water systems" and are under the jurisdiction of the California Department of Health Services. There are three large water systems in the study area: California

Water Service Company's Oak Hills and Las Lomas water systems, and the Aromas Water District. These three systems have approximately 2,246 connections, serving approximately as many parcels and 23 percent of the parcels in the study area.

Water systems with less than 200 connections are within the jurisdiction of the Monterey County Division of Environmental Health (MCDEH). Approximately 406 small water systems exist in the study area and serve approximately 3,707 parcels. This represents 38 percent of the total number of parcels in the study area. Small water systems are further subdivided by MCDEH into two subclasses: systems with 2 to 14 connections and those with more than 14 connections. The remaining parcels not served by a water system are served by private wells or are undeveloped. Data regarding all small water systems in the study area are summarized in Table 1- Water System Data, North County Area.

Table 1. Water System Data - North County Area

No. of Connections	No. of Systems	No. of Parcels Served	Percent of Total Parcels
2-14	308	1,247	12.7%
15-200	98	2,460	25%
>200	3	2,246	22.9%
All Water Systems	409	5,953	60.6%

Table 1 reveals that 12.7% of all parcels are served by water systems with less than 15 connections. Table 1 also reveals that approximately 40% of parcels in the study area are served by a single well or are undeveloped. Water systems with 15 or more connections were compiled as a GIS coverage using data from the MCDEH small water system database. The GIS coverage is presented as Figure 8 - North County Water Systems/Study Wells.[1]

The number of wells serving a water system varies considerably with the hydrogeologic conditions. Most of the water systems have from one to five wells, depending on water system demand and well production.

North County Subareas

The North County study area is currently defined by a combination of political, geographic, and hydrologic boundaries. The area includes many watersheds, several of which extend into the adjacent counties of San Benito and Santa Cruz. The area also has extremely varied hydrogeologic conditions. To simplify analysis of this large and diverse area, previous

[1] This GIS coverage is supported by a database created from data provided by MCDEH. Data provided only included systems with more than 14 connections. Given the large number of small systems with between 2 to 14 connections, it was not feasible to locate and show the smaller systems. However, the GIS database is structured to allow the importation of these data.

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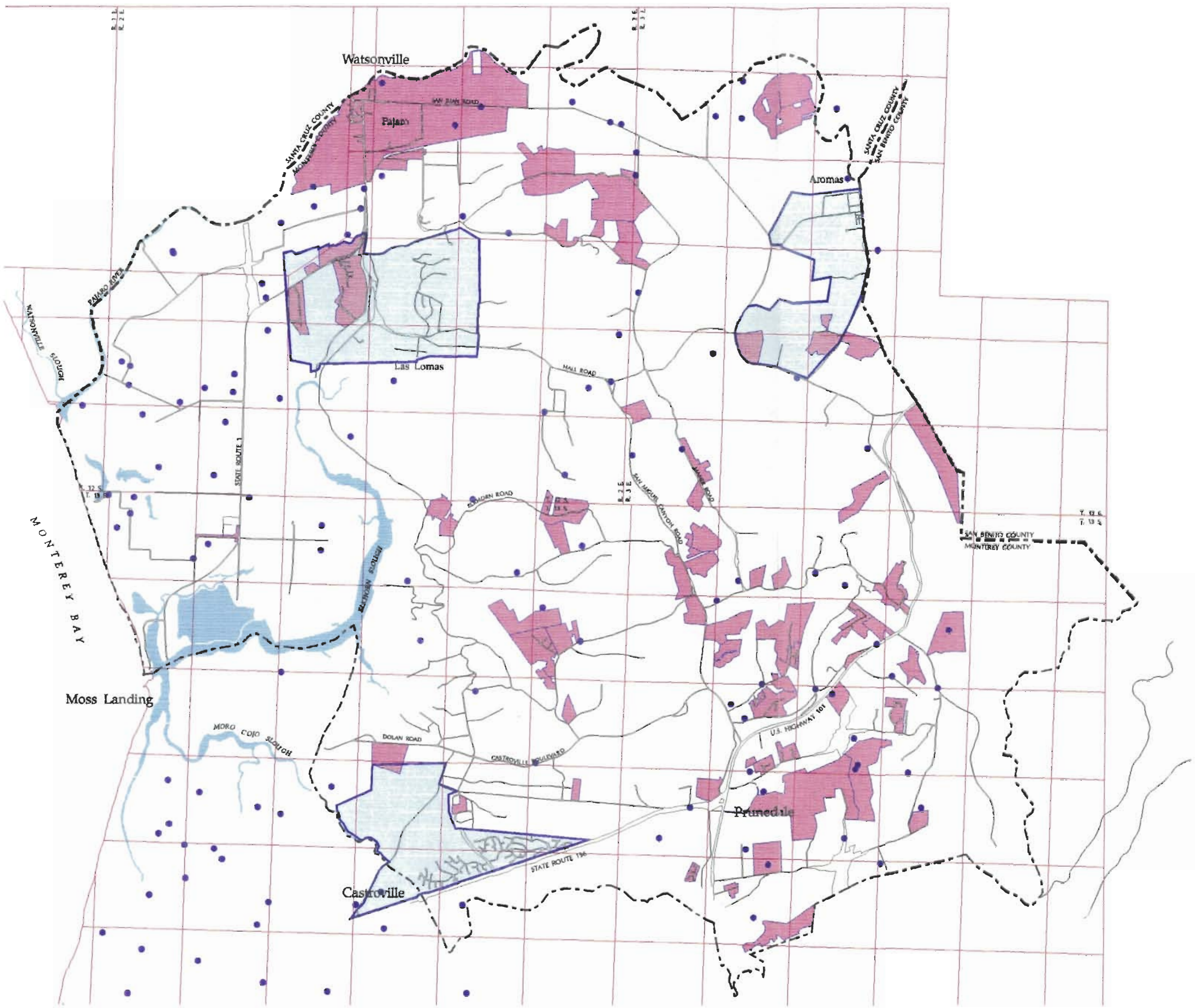

Figure 8

NORTH COUNTY WATER SYSTEMS/ STUDY WELLS

Study Wells

Systems w/ 15-200 Connections

Systems w/ >200 Connections

Study Area Boundary

County Line

Township and Range Grid

Note: Systems with less than 15 connections are not shown

MILES

0 1.25 2.5

Source: MCWRA

North Monterey County Hydrogeologic Study

studies have suggested several schemes for dividing the study area into smaller hydrogeologic subareas. Previous divisions of the area have been based on hydrology, hydrogeology, political and administrative boundaries, and combinations of these factors. These subareas have subsequently been used as planning units and to estimate various components of the water balance. The previous approaches are reviewed below.

Previous Subarea Delineations. The study area lies between the well-defined alluvial valleys associated with the Salinas and Pajaro Rivers. Both of these ground water basins have been studied extensively. However, these studies limited their analyses to the alluvial valleys, implicitly defining an area between these two alluvial basins. Indeed, CPWD Bulletins 5 (1953) and 52 (1946) focused on the Pajaro-Santa Cruz and Salinas Valley areas, respectively. They define, by omission, the bulk of the North County study area. The omitted area was later called the Salinas Highlands area.

Department of Water Resources Subareas. The first significant study of the area formally suggesting the division into subareas was performed by DWR. This study, prepared in 1970 and published in 1977 after several revisions, suggested four subareas: Pajaro, Aromas, Springfield, and Hill. These subareas were based primarily on hydrogeologic distinctions. The Pajaro subarea encompasses the area of Monterey County (underlain by Pajaro River alluvium) on the Pajaro Valley floor. The Aromas subarea (centered on the village of Aromas), was bounded on the west by the trace of the Vergeles fault and the east by the San Benito County line. This subdivision was based upon the reported low yielding characteristics in this area of the Aromas Formation and the assumption that the Vergeles fault represented a boundary to ground water flow. The Springfield subarea is the Springfield Terrace, bounded by the Pajaro Valley on the north, the Slough to the south and east, and the Pacific Ocean to the west. The Springfield subarea was based primarily on the geomorphic evidence and the assumed hydraulic separation from the adjacent areas by the low permeability materials in the Slough. The Hill subarea (all of the remaining area) extends from the exposed granitic bedrock of Prunedale to the marsh and Slough areas near the coast, including areas of extremely varied hydrogeology.

USGS North Monterey County Study Subareas. The USGS study (Johnson, 1983) suggested a different subdivision scheme. Though not well documented, the USGS subareas were based on six surface water drainage areas: the Pajaro River, Springfield Coastal Terrace, Elkhorn Slough, Mojo Cojo Slough, Tembladero Slough, and Gabilan Creek. These six watersheds were further divided into a total of 17 subareas (16 within Monterey County and one covering the area further up the Pajaro River in San Benito County) on the basis of geology, drainage divides, and land development. The report specifically states that the subareas are primarily for purposes of water balance accounting and in most cases, ground water was believed to move freely between the subareas. The subareas of the USGS are shown on Figure 9.

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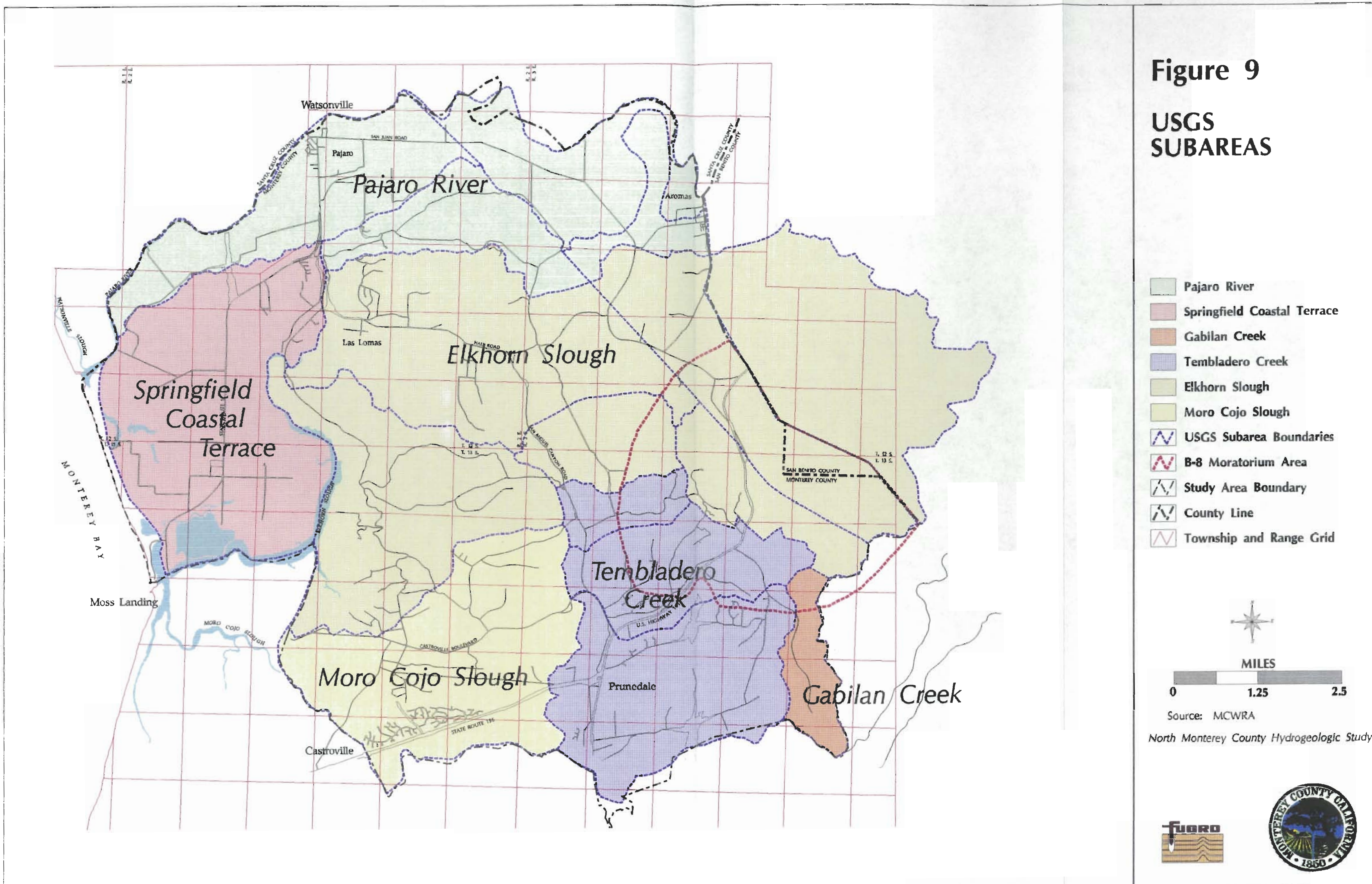


Figure 9

USGS SUBAREAS

Source: MCWRA

North Monterey County Hydrogeologic Study

Comparison of the USGS scheme with the DWR scheme reveals some similarities and variations. The USGS and DWR agree on the Springfield Terrace area. The Pajaro lowlands subareas (P_1 and P_2) of the USGS compare with the Pajaro subarea of DWR. The USGS scheme has subdivided the overly broad DWR Hill subarea into 12 smaller subareas. Some of these subareas suggested by the USGS are based on geology and improve understanding of this area; however, other subareas within the Hill subarea appear arbitrary and are inferred to be based on factors other than hydrogeology. The mixing of subareas based on hydrogeology with those based on other factors complicates the understanding and management of the ground water resources of the area.

Anderson-Nichols, Inc. - Prunedale Study Area, Moratorium Area. In response to the findings of the DWR and USGS, a study was performed by A-N (1980) focusing on the area deemed to be "water-short." The study area included the area designated by the USGS as the "zone of complex hydrogeology," essentially the area underlain by and containing the granite ridge. This study concluded that water supply was limited, and resulted in the placing of a moratorium on land subdivisions in the area. The boundaries of the study area were later slightly refined for purposes of establishing the moratorium area (A-N, June 1980). The moratorium area is shown on Figure 9.

Model Subareas of Montgomery Watson. Another division scheme for the study area is that suggested by JMM (1993) as part of the modeling efforts of the Pajaro and Salinas Valleys. In the Pajaro model, JMM divides the area south of the Pajaro River into six subareas: Springfield Terrace, Carneros Hills, Carneros Creek, and several subareas within the Pajaro Valley floor. With the exception of the Springfield Terrace subarea, the divisions are based on criteria other than hydrogeology. These criteria include conformance with administrative and political boundaries, land use designations, and drainage areas. The areas are not intended to be hydrogeologic subareas. The model of the Salinas basin does not subdivide any of the North County area covered by this model (MW, 1994). The North County study area is included as part of either the Pressure or East Side areas, as appropriate.

Monterey County Water Resources Agency Areas. In addition to the above division schemes, the Agency utilizes another for purposes of organizing data. The agency subareas are the Pajaro-Springfield, Prunedale, and Moro-Cojo areas. Although these areas are not strictly intended as hydrologic subdivisions, the Agency's Pajaro-Springfield area is roughly equivalent to DWR's Pajaro, Springfield, and Aromas area, while the Agency's Prunedale and Moro-Cojo areas are roughly equivalent to DWR's Hill area.

Revised Hydrogeologic Subareas. Review of the previous division schemes and the available and recently acquired hydrogeologic data provide a basis for developing revised subareas that better reflect the hydrogeology of the areas. The new subareas are designed to divide the North County into smaller areas of similar hydrogeologic conditions. Included in this criteria were factors such as long-term availability of water, well yields, depth to bedrock, susceptibility to water quality problems, volume of ground water in storage, and sources of recharge. Based on this criteria, five subareas were developed. The revised subareas were presented to the inter-agency technical advisory committee on April 24, 1995, and were accepted. As accepted, the revised subareas are as follows:

1. Pajaro
2. Highlands North
3. Highlands South
4. Granite Ridge
5. Springfield Terrace

The five subareas most closely resemble the subarea scheme of DWR, except that the Hill subarea has been renamed to Highlands and the eastern portion divided and renamed as the Granite Ridge area to reflect the very different conditions between the areas underlain by granitic rocks at shallow depths and the areas to the west. The Highlands subarea was also divided into a north and south highlands subarea to respect the jurisdictional boundary of PVWMA and the Agency. This boundary is purely jurisdictional because ground water moves freely between the subareas. The DWR Aromas subarea was eliminated because available evidence suggests that the Vergeles fault does not disturb recent sediments; therefore, it does not represent a barrier to ground water flow (Gribi, 1989). Available data also suggest that hydrogeologic conditions are more similar to other portions of the Pajaro Valley than the adjacent Highlands area. The new subareas are presented on Figure 10 - Revised Subareas North County Study Area.

Pajaro. This subarea is the portion of the study area that is within the Pajaro River floodplain south of the Pajaro River and west of the San Benito County line. This subarea is essentially the DWR Pajaro subarea, with the inclusion of the portion of the DWR Aromas subarea that is within the floodplain. It is also essentially equivalent to the USGS subareas of P1 and P2. The subarea is defined by the nature of the sediments (recent Pajaro alluvium) and the dominant source of recharge, infiltration from the Pajaro River, either locally or in the (upgradient) forebay. The area is characterized by as much as 800 feet of saturated sediments interpreted as either Aromas Sand or alluvium. Well yields are high, with agricultural wells producing in excess of 2,000 gallons per minute. The volume of ground water storage in the subarea is large and ground water is readily available to all users. Supply problems are in the form of overall storage depletion, which is manifested to the users as falling water levels. This overdraft also results in localized degradation of water quality from intruding seawater for the users near the coast. Water quality problems are from elevated nitrate ion concentrations resulting from irrigated agriculture and, near the coast, seawater intrusion.

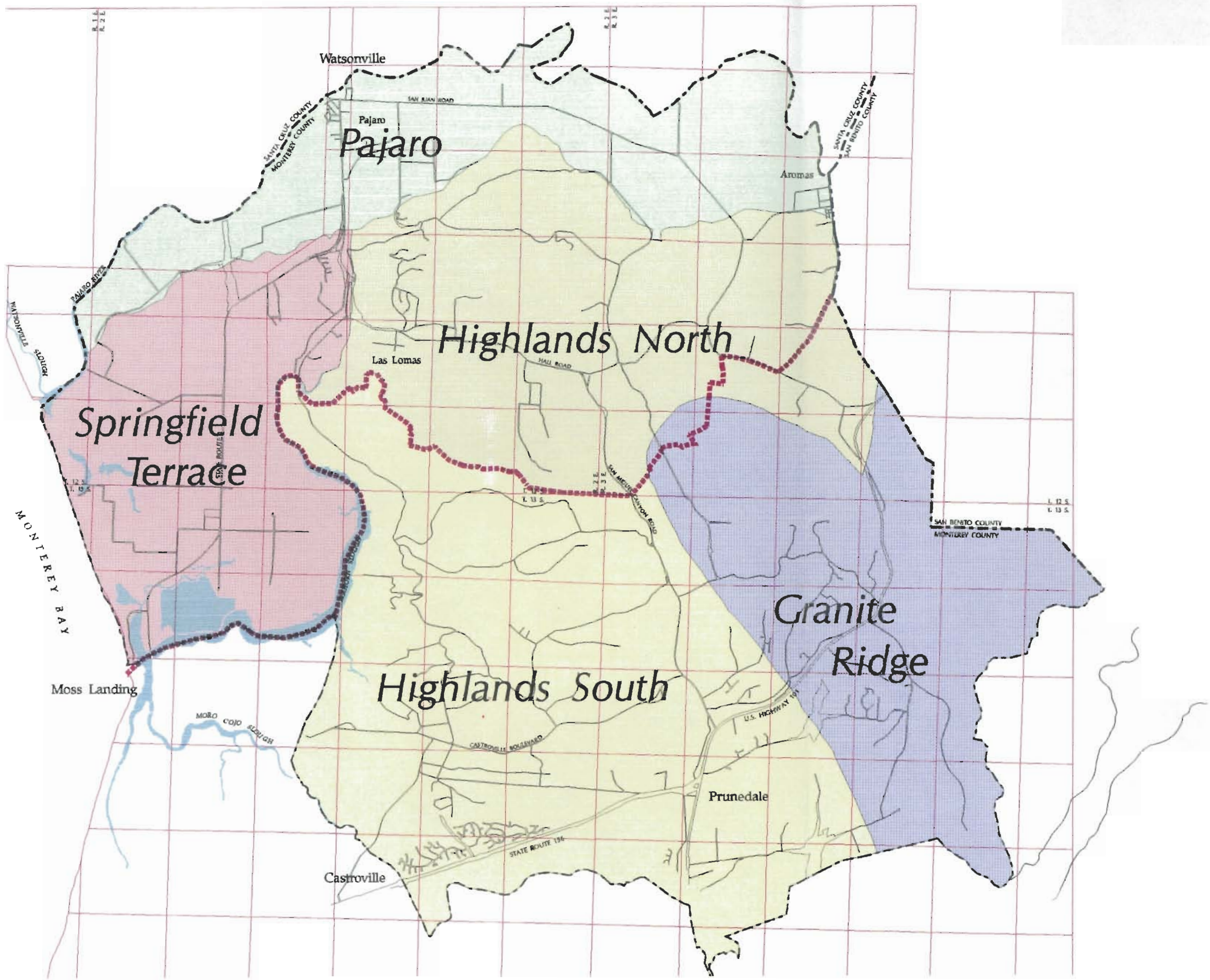


Figure 10

NORTH COUNTY STUDY AREA REVISED SUBAREAS

- Pajaro
- Springfield Terrace
- Granite Ridge
- Highlands North
- Highlands South
- PVWMA Boundaries
- Study Area Boundary
- County Line
- Township and Range Grid

MILES

0 1.25 2.5

Sources: MCWRA, Fugro

North Monterey County Hydrogeologic Study

FUGRO

MONTEREY COUNTY CALIFORNIA 1850

North and South Highlands. These subareas are a refined version of DWR's overly broad "Hill" subarea. Taken together, these subareas encompass the largest area. It includes the area east of Slough, south of Pajaro Valley, north of the Salinas Valley, and west of the newly defined Granite Ridge subarea. Establishing a boundary between the Highland and Granite Ridge subareas is difficult because the transition between hydrogeologic conditions is gradual. The transition can be characterized as changing from a relatively thick section of saturated sediments which thin with increasing distance eastward until the granitic bedrock is above regional saturation. As the saturated section of sediments becomes thinner, well yields and aquifer storage characteristics change significantly. Although somewhat arbitrary, the proposed boundary has been defined as the point where the elevation of the underlying granitic bedrock is greater than -100 feet MSL. Given that current water levels in the areas proximate to the granite ridge area are approximately at an elevation of sea level, the establishment of the suggested boundary would separate areas with more than 100 feet of saturated sediments from those areas having less. Given the falling water level conditions in the area and the variable well yields, it is considered that 100 feet of saturation will provide for long-term water supply from wells. Areas with less than this amount may experience limited yields, drought susceptibility, and possibly water quality problems.

The Highland subareas can be characterized as having up to 800 feet of saturated sediments overlying the Purisima Formation. Most of the saturated section is Aromas Sand, with localized areas of saturated alluvium. Recharge is from infiltration of rainfall not lost to runoff or evapotranspiration. Well yields, while less than those displayed in the Pajaro subarea, are good in these subareas, with municipal and irrigation well discharge rates as high as 1,500 gpm. Like the Pajaro subarea, the volume of ground water in storage in these subareas is large, and ground water is readily available. However, the subareas have experienced long-term trends of falling water levels, reflecting chronic storage depletion. Most of the area displays water levels below sea level. The occurrence of water levels below sea level in this area results in the localized degradation of ground water by seawater, from both seawater intrusion and leakage from the Slough (the leakage is explained later in this report). The Highlands subareas are also impacted by elevated nitrate ion concentrations within the upper portion of the aquifer system. Available data suggests that nitrate ion concentrations decrease sharply with increased depth below saturation.

Granite Ridge. This subarea is east of the Highlands area to the San Benito County Line. It includes the outcrops of granite and Tertiary marine sediments east of the Vergeles fault and where these materials occur at elevations greater than -100 feet MSL. Recharge in this subarea is limited to infiltration of excess precipitation. This subarea displays a variety of water availability problems manifested as "dry holes," low-yielding wells, and supplies that fail under drought conditions. These problems reflect the hydrogeologic setting. Some of the wells in the area are completed in a thin veneer of Aromas Sand overlying the granitic bedrock or in the weathered granite. Wells completed in these granular materials (Aromas and weathered granite) display low yields (typically less than 50 gpm) because of the limited saturated thickness of these materials. The remaining wells in the area are completed in the fresh granite or other consolidated formations. Well yields in the consolidated rocks (granite and Tertiary sediments) are very low and highly variable (typically less than 5 gpm).

The low volume and high variability of the yields reflect that ground water in these formations occurs within fractures. The movement and availability of ground water in these materials is controlled by the occurrence, connectedness, and distribution of fractures. The distribution and connection of fractures to sources of possible recharge within fractured bedrock are essentially random, and the success of a well is a matter of chance. It is possible in this hydrogeologic setting to drill a well that intersects so few saturated fractures that it is deemed a "dry hole."

Ground water storage within this subarea is extremely limited. This compounds the water availability problems within the subarea. The aquifer's low storage limits supply during periods of deficient recharge. Additionally, the low permeability limits the distribution of pumping stress throughout the subarea. This makes the use of a water balance somewhat misleading. Although the water may be accounted for within the system, it may not be available for extraction at any given location.

Water quality problems in the subarea are limited to localized elevated concentrations of nitrate ions resulting from septic and agriculture return flows. Nitrate contamination problems are also exacerbated by the limited storage available for dilution. Wells in fractured granite are susceptible to contamination from unpredictable locations, as the areas of contribution to these wells are difficult to define.

Springfield. The Springfield subarea is consistent with both the USGS and DWR's previous subarea scheme. Although the subarea is similar in geologic setting to the Highlands subarea, the Springfield subarea is, at least to the south and southeast, hydraulically separated from the rest of the study area by the low permeability materials filling the ancestral Elkhorn Valley. This boundary, as well as the western boundary with the Pacific Ocean, has been the basis for the previous definition of this subarea, and is still considered valid.

Well yields are comparable with those in the adjacent Highlands area. Water supply problems are manifested as chronic storage depletion, with current water levels below sea level throughout the area. Water supply is locally limited by water quality problems. Increasingly, supplies are limited by elevated chloride ions resulting from the intrusion of seawater from the ocean and possibly the Slough area. Adequate domestic supply is limited by widespread high nitrate ion concentrations in the subarea. Within the study area, the Springfield subarea is experiencing both the highest measured levels of nitrate contamination and highest percentage of wells with nitrate contamination.

Aquifer Parameters

Data to characterize the hydraulic properties of the individual aquifer units in the study area are sparse. In many areas, wells are completed in multiple units. Well yields and aquifer parameter data are, therefore, composites of various units. For purposes of understanding the hydrogeology of the study area, available data were aggregated by subarea rather than individual aquifer units. This was considered reasonable because the lithological differences between the formations that constitute the water bearing units in the Highlands, Pajaro, and Springfield subareas are minimal; the most significant factor affecting well performance being the saturated thickness of permeable materials.

Well performance data in the form of discharge, drawdown and specific capacity data (ratio of production to drawdown) were derived from well logs available from the Agency, water system reports from MCDEH, pump tests performed as part of this study, and various other sources. These data are presented in Appendix B. The data set includes municipal, agricultural, and domestic wells. As such, the data set includes wells constructed with varied design criteria, efficiencies and discharge rates. These variations in design skew interpretation of the data. For example, wells constructed for domestic use are designed, constructed and developed to meet a minimum flow requirement. These wells typically utilize a small diameter casing with relatively inefficient intake section. The resulting discharge rate and specific capacity data from these smaller wells is typically low due to efficiency losses. Data from these wells can misrepresent the aquifer system. Additionally, the data set, for any given subarea, includes varying percentages of domestic verses high capacity wells, skewing analysis based on averages.

In reviewing the data for a subarea, the highest and lowest discharge rate were determined as well as the average specific capacity for all the wells. The most significant factor is the occurrence of higher discharge or specific capacity values. Such values are typically derived from well-designed, high-capacity wells for agriculture or municipal supply. In a given subarea, the absence of wells with high discharge rates or a high specific capacity value is much more significant than the occurrence of low rates, which may represent inefficient wells rather than low-yielding aquifers. In spite of these limitations in the data set, the differences and similarities in the various hydrogeology subareas are still apparent in the resulting data. The data are summarized in Table 2 - Summary of Well Performance Data.

Table 2. Summary of Well Performance Data

Subarea	Max. Discharge (gpm)	Min. Discharge (gpm)	Max. Specific Capacity (gpm/ft)	Min. Specific Capacity (gpm/ft)	Average Specific Capacity (gpm/ft)
Granite Ridge	180	1.5	12.5	0.01	0.5
Highlands	1,500	6	71.43	0.13	4.1
Pajaro	2,100	18	31.75	0.67	15
Springfield	1,900	3	40	6.15	4.15

As could be expected, given the hydrogeologic setting, the average specific capacity and maximum discharge rates are lowest in the Granite Ridge subarea. The well performance data for the remaining subareas reveal these areas to be comparable given the variability and completeness of the data set. The comparability of these values is consistent with the nature of the aquifer materials.

Aquifer Testing

In order to develop better aquifer parameter data, aquifer tests were performed at five locations in the study area. Well locations were selected based on a criteria including availability of well construction and lithologic data, logistics of use of water by well owner, ease of water disposal, and owner's permission. After review of the existing well ownership data, it was apparent that the most feasible wells on which to perform aquifer testing were those operated by the larger water companies in the area; Aromas Water District and California Water Service, Co. (Cal-Water).

Each of these water companies was approached regarding the feasibility of testing several of their wells. Cal-Water granted permission and participated in the performance of four aquifer tests, two in the Las Lomas Water System and two in the Oak Hills water system. Aromas Water District declined to participate due to concerns regarding possible damage to the well pumps. An additional aquifer test was performed on the newly constructed well in the County-owned Royal Oaks Park.

Each aquifer test consisted of a minimum of 100 minutes of pumping at a constant discharge rate followed by an equal recovery period. Test durations were limited by the storage capacity of the water systems. The aquifer test at Royal Oaks was performed for a period of 22.5-hours. After performance of the tests, data were analyzed utilizing conventional (Jacob-Cooper) aquifer analysis methods. The test data and analysis are contained in Appendix C - Aquifer Testing. The data are summarized in Table 3 - Summary of Aquifer Test Data.

Table 3. Summary of Aquifer Test Data

Well No.	Well Name	Subarea	Discharge Rate (gpm)	Specific Capacity (gpm/ft)	Transmissivity (gpd/ft)
13S/02E-24TO2	CWS Oak Hills 202	Highlands S.	412	12.9	35,700
13S/02E-26CO1	CWS Oak Hills 203	Highlands S.	585	20.9	37,316
12S/02E-22Q50	CWS Las Lomas 303	Highlands N.	475	42.5	249,500
12S/02E-27?	CWS Las Lomas 301	Highlands N.	150	24.2	67,700
13S/02E-06?	Royal Oaks	Highlands N./Granite R.	100	3.95	37,700

The collected well performance data and aquifer test data were provided to Montgomery Watson to allow refinement of the existing ground water models covering the study area.

WATER LEVEL/EXISTING CONDITIONS

Water Level Data

Water level data from the Agency database and from field surveys were utilized to prepare water level hydrographs and ground water surface elevation contour maps. Hydrographs were prepared for each study well that had sufficient data. The location of the study wells are presented on Figure 8. In addition, hydrographs were prepared for selected wells in adjacent areas (East Side, Pressure Area [180-foot and 400- foot and Deep Aquifers]) for purposes of comparison. Hydrographs are presented in Appendix D - Water Level-Chemical Hydrographs. The water level database was also utilized to analyze trends in water level throughout the study area. Water surface elevation data were compared for each well for the years 1970, 1980, and 1990. These three intervals were used to examine the sensitivity of the analysis to drought periods. Average annual water level change in each well was calculated for each interval and averaged by subarea. The analysis is included in Appendix I. The results of the analysis are presented in Table 4 - Summary of Ground Water Level Trend Analysis.

Table 4. Summary of Ground Water Level Trend Analysis

Subarea	No. of Wells	Annual Average WL Change (1970-1980) (feet)	Annual Average WL Change (1980-1990) (feet)	Annual Average WL Change (1970-1990) (feet)
Granite Ridge	7	-0.54	-0.13	-0.34
Highlands	15	-0.56	-0.54	-0.55
Pajaro	12	-0.42	-1.09	-0.75
Springfield	16	-0.48	-0.50	-0.49

The water level trend analysis reveals a general long-term trend of declining water levels in the study area. Water level declines are greatest in the Pajaro subarea where agricultural demand is the greatest. Water level declines are least in the Granite Ridge Subarea, consistent with the reduced level of extractions in this area due to limited well yields.

Areal Analysis of Water Level Data

Review of the water level hydrographs revealed the historical basin high to be best represented by water level data collected during the winter of 1982/1983. These data are presented on Figure 11 - 1983 Water Levels. Review of the water level data also revealed that current water level conditions, as measured during August/September 1994 as part of this study, closely represent conditions of the historical basin low, although some wells displayed slightly lower water levels in the fall of 1991. However, given the greater amount of data available for current conditions, the presentation of the more recent data was considered representative of general conditions. These data are presented on Figure 12 - 1994 Water Levels. Figure 11 was contoured at a minimum of 100-foot intervals because of the limited amount of data. Figure 12 was contoured on a minimum of 5-foot intervals because of the substantially improved data density because of the data collection efforts performed as part of this study. Additional data were also provided by Pajaro Valley Water Management Agency (PVWMA). Wells used in contouring were interpreted to be in equivalent aquifer units. Wells considered to be completed in localized perched aquifer systems were not included in the regional contours.

Pajaro and Springfield Subareas. In the Pajaro and Springfield subareas, ground water elevations as of September 1994 were between zero to 35 feet below mean sea level throughout most of these areas. In general, the ground water surface has fallen about 5 to 10 feet from the 1979 levels documented by the USGS (Figure 13 - 1979 Water Level Contours). As

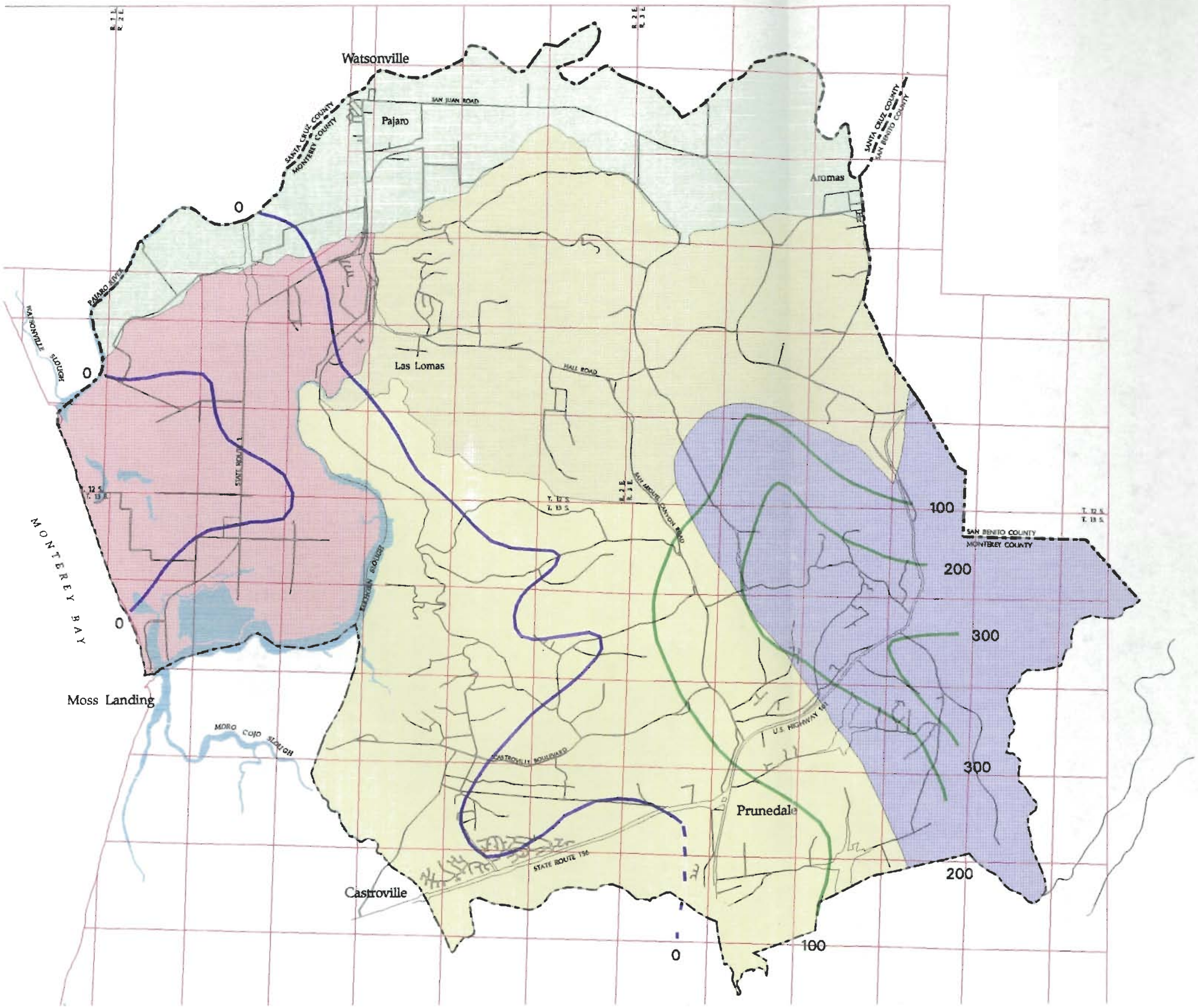


Figure 11

1983 WATER LEVELS

- Pajaro
- Springfield Terrace
- Granite Ridge
- Highlands North
- Highlands South
- Water Surface - Below Sea Level
- Water Surface - Sea Level
- Water Surface - Above Sea Level
- Study Area Boundary
- County Line
- Township and Range Grid

MILES

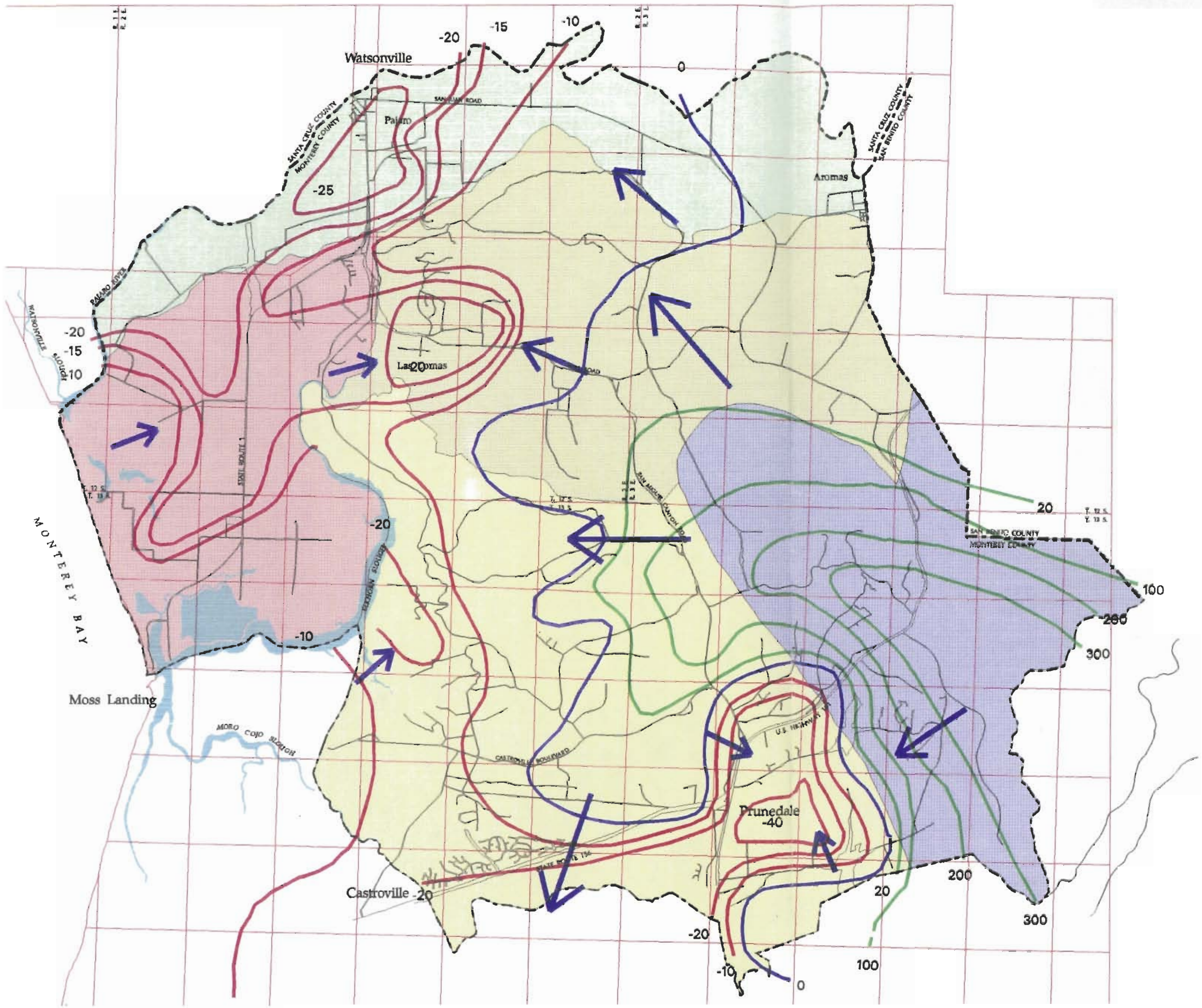
0 1.25 2.5

Sources: MCWRA, PVMVA, and Fugro

North Monterey County Hydrogeologic Study

Figure 12

1994 WATER LEVELS



Pajaro

Springfield Terrace

Granite Ridge

Highlands North

Highlands South

Water Surface - Below Sea Level

Water Surface - Sea Level

Water Surface - Above Sea Level

Study Area Boundary

County Line

Township and Range Grid

Note: Arrows indicate direction of ground water movement

MILES

0 1.25 2.5

Sources: MCWRA, PVMVA, and Fugro

North Monterey County Hydrogeologic Study

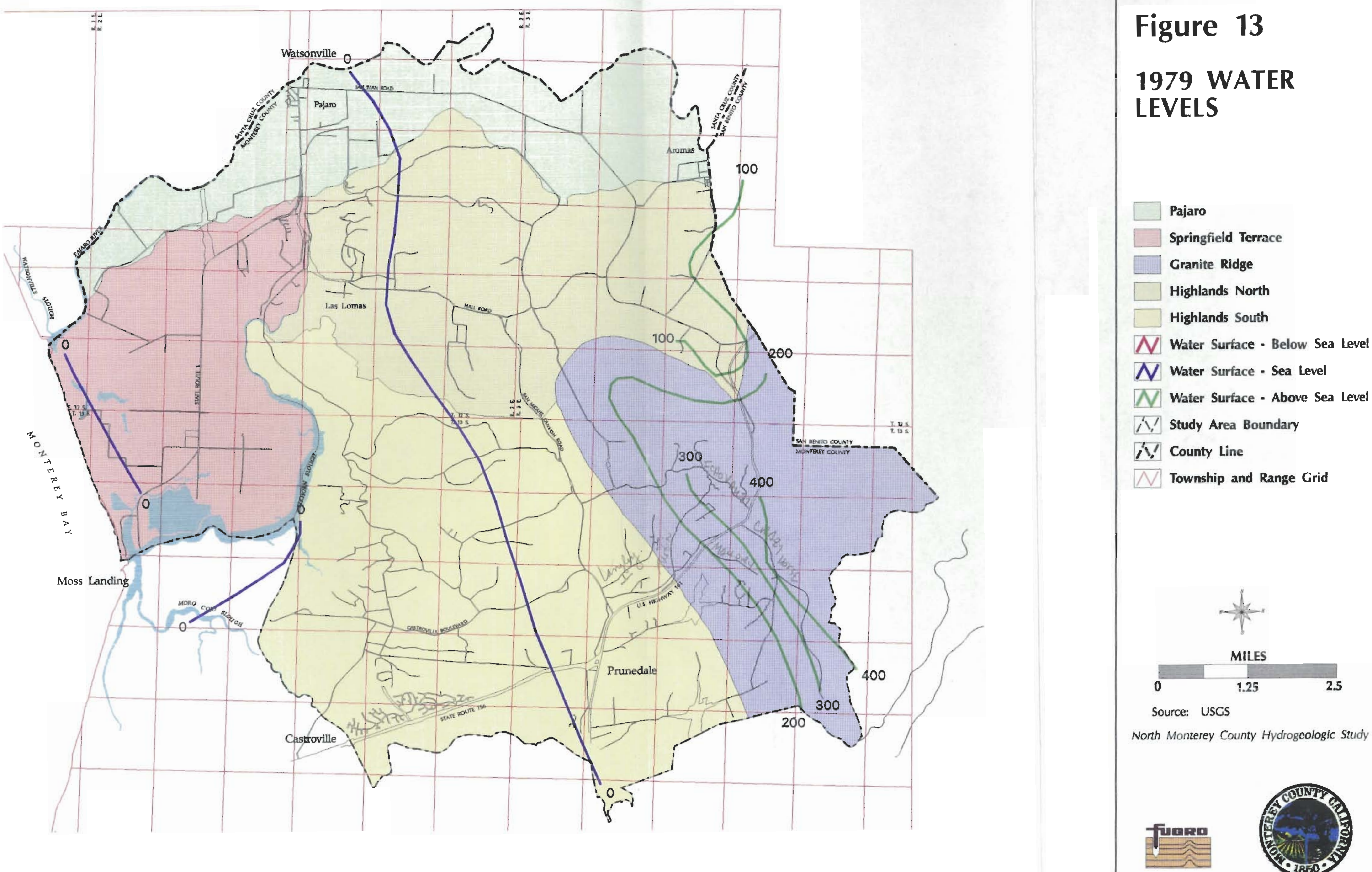


Figure 13

1979 WATER LEVELS

Source: USGS

North Monterey County Hydrogeologic Study

shown on Figure 11 ground water surface elevations recovered slightly from 1979 levels in response to the increased recharge and reduced pumping, the result of above-average precipitation of 1983. However, water level declines since 1983 have more than offset the limited gains of the preceding few years. Since 1979, much more of the study area has had water levels at or below sea level. These declines are part of a longer-term, gradual downward trend in the regional aquifer water surface elevations over the entire period of record.

Highlands Subareas. Water levels in the Highlands subareas have consistently declined over the last 20 years. Of note are the development and growth of several pumping troughs in the area. Figure 12 shows a significant pumping trough in the Prunedale area which has developed (or for which data is now available) since 1979 with water levels exceeding 40 feet below mean sea level (MSL) in some places. Also apparent is the presence of a pronounced pumping trough in the Las Lomas area with water levels approaching -25 feet MSL. The trough at Las Lomas is the northern portion of a larger north-south trending pumping trough lying approximately 2 to 4 miles inland from and parallel to the coast. The trough has deepened and moved landward since December 1979, when documented as part of the USGS study. Between the axis of the pumping troughs and the coast, ground water movement is landward, allowing seawater to move into the aquifers through offshore exposures and to migrate inland. The extent and mechanisms of seawater intrusion are described in a later section.

The water level data for the Highlands subareas, taken collectively, suggest a regional dewatering of these subareas with water levels retreating toward the buried bedrock ridge. The pumping trough in the Prunedale area strongly suggests a boundary condition to the north and east represented by the diminishing saturated thickness of aquifer materials in these directions. The historical movement of the zero elevation water level contour is presented on Figure 14 - Historical Sea Level Contours.

Transition Area Between Highlands and Granite Ridge. Water level measurements from several domestic wells in the zone of transition from the Highlands to the Granite Ridge area, (those areas east and northeast of San Miguel Canyon and near Prunedale) reflect the significantly different hydrogeologic conditions. Most of these wells have maximum depths that lie above sea level and are completed in either the Aromas Sand which is lapped against the underlying weathered granite, the weathered granite, or both. Water levels in these wells show a great range in water surface elevations (-40 to 270 feet) reflecting their completion in both the regional and perched aquifers. Available data are insufficient to characterize regional trends in this area. However, data from the recently completed Royal Oaks Park Well suggests that water levels continue to fall and that water levels in the regional aquifer system in this area are locally below sea level.

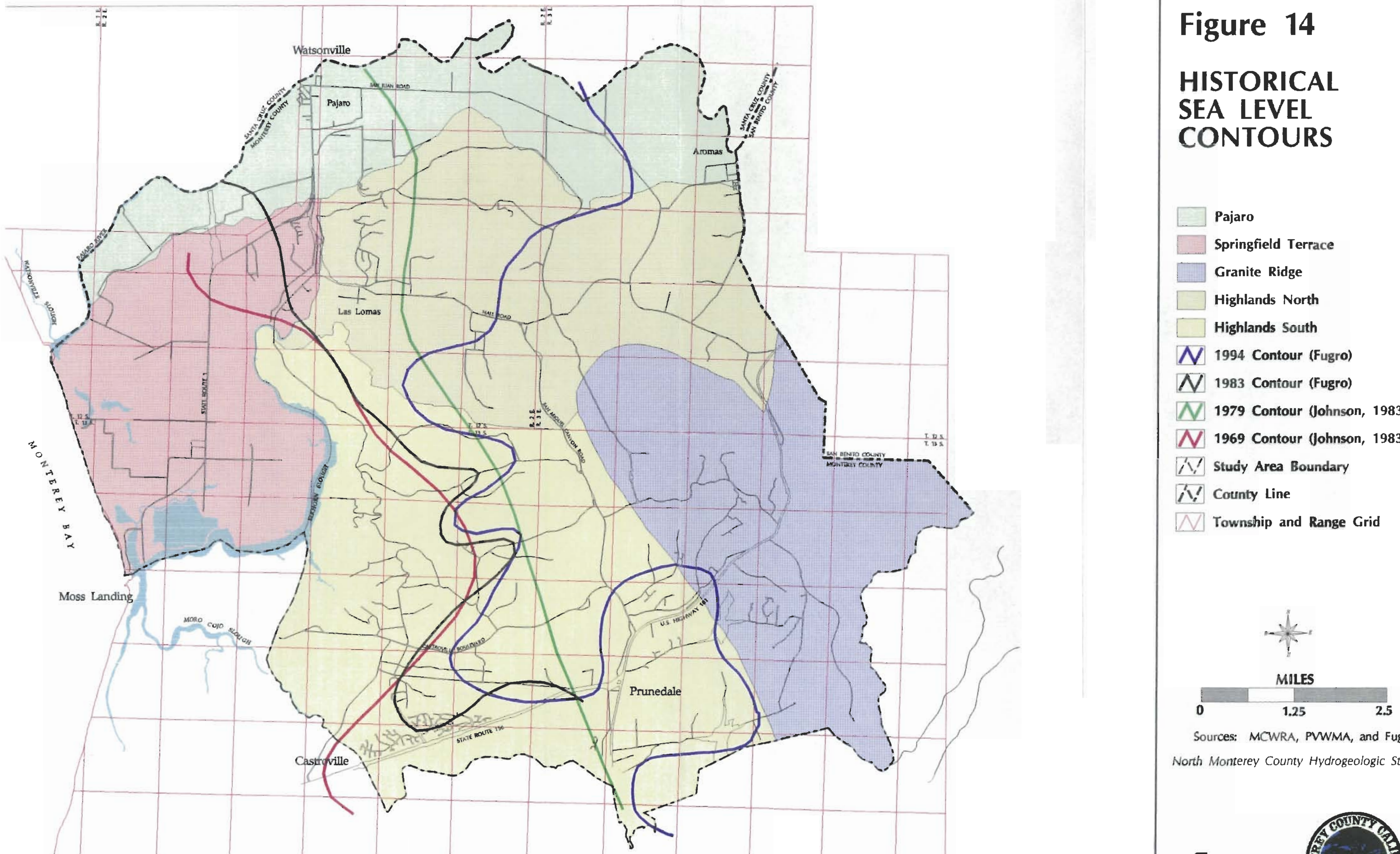


Figure 14

HISTORICAL SEA LEVEL CONTOURS

Sources: MCWRA, PVWMA, and Fugro

North Monterey County Hydrogeologic Study

Granite Ridge. Most wells in the hilly region east of Maher Road and near Crazy Horse Canyon north of Prunedale are completed in either a thin veneer of Aromas or completed in weathered and fractured zones of granite. As shown on Plate 2, the granitic basement in this area slopes steeply west and south from an approximate elevation of 300 to zero feet MSL. Wells in this area have water levels perched above and in the granitic basement. Ground water elevations in these wells range from approximately 100 to 400 feet MSL. Some wells perforated in the weathered and fractured granite display rapidly decreasing water levels. This occurs with the removal of water stored in fractures which is not readily recharged.

GROUND WATER MOVEMENT

Ground water movement is controlled by differences in water level elevations or pressure. Water at higher pressure or elevation moves to areas of lesser pressure or elevation. In the study area ground water moves generally westerly, northerly, and southerly from the Granite Ridge area into the Highlands South, Highlands North, and Salinas Valley, respectively. The current directions of ground water flow in the study area is shown on the 1994 water level contour map.

Ground water flow directions are locally effected by the development of various pumping troughs in the study area. Most significant are the developed pumping troughs in the Prunedale and Las Lomas areas and a coastal pumping trough along Elkhorn Slough. In these areas, regional flow directions are disturbed. Ground water moves radially towards these pumping centers. Ground water flow in the areas immediately adjacent to the Granite Ridge area are also influenced by the permeability boundary which is represented by the change in aquifer properties and thickness.

Much discussion was focused on the importance, existence and volume of regional ground water flow from the study area into the adjacent Pajaro and Salinas Valleys. The existence of this regional flow has been identified on the basis of historical water level gradients between these areas. While current water levels in the majority of the study area are still higher than the adjacent areas, this difference is decreasing, reducing the volume of recharge from these upgradient areas.

Consideration of the natural flow system in the study area and the adjacent areas raises the question of ground water flow direction between the study area and the adjacent areas prior to alteration of water level conditions resulting from ground water extractions. The large majority of the recharge in both the Pajaro and Salinas Valleys is derived from the respective river systems. In the study area, recharge is much less and limited to the infiltration of a minor portion of total precipitation. Prior to the onset of ground water extractions in the beginning of this century, both the Salinas and Pajaro Valleys contained many flowing (artesian) wells. These data suggest that before extractions in the adjacent river valleys began, ground water from these valleys may have been tributary to the study area (rather than the current conditions). Additionally, prior to extractions in the study area, the natural flow fresh water regime probably included surface discharge into the Elkhorn Slough system as a part of the flow regime.

WATER QUALITY

General Statement

Current water quality conditions within the study area were assessed utilizing both existing data and water quality data collected as part of this investigation. Existing water quality data were summarized and, where needed, supplemented with specific sampling. While ground water quality in the study area is generally excellent to good, localized water quality problems, specifically elevated nitrate and chloride ion concentrations, do exist and are increasing. This investigation focused primarily on these two water quality parameters.

Data Review/Existing Conditions

Data Sources

Chemical Hydrographs. Water quality data from the Agency study wells were utilized to prepare chemical hydrographs for selected constituents. Specific electrical conductivity (SEC) and nitrate ion concentration are presented for the eastern portion of the study area. In the western portion of the study area, chloride ion concentrations are also presented to document the occurrence of contamination of ground water by seawater. The chemical hydrographs are also included in Appendix D.

Small Water System Water Quality Data. As part of the review of the water system data, water quality data was tabulated from the files of Monterey County Division of Environmental Health (MCDEH). Nitrate ion concentration data were collected and tabulated if the construction of the well sampled was known or the water level data were available. This allowed the segregation of the water quality data into two groups, data from wells producing from the many isolated perched aquifer systems in the area and data from those in the regional aquifer system.

Water Quality Sampling. After review of the existing water quality data, specific ground water quality samples were collected from 10 locations within the study area. Samples were collected in areas where data were sparse and in areas where existing data was either questionable or interpretation was difficult. Particular attention was paid to those areas near Elkhorn Slough for purposes of assessing degradation due to seawater. Collected water quality samples were provided to the Agency for analysis at the Monterey County Consolidated Laboratory. The analytical program was limited to major cations, anions and nitrate ions. These data are included in Appendix E.

Ground Water Quality

Ground water quality in the study area is generally good to excellent. Where not impacted by seawater contamination, ground water in the study area is generally of a calcium bicarbonate chemical character with electrical conductivity averaging 450 micromhos/cm. Water quality is impacted by seawater contamination and elevated nitrate ions, although the extent of the contamination varies with each subarea. The levels of contamination are increasing over time. In addition, while specific data are not available, poor water quality has been documented in the Murphy Crossing-to-Aromas region of the Pajaro subarea.

Elevated Chloride Ions. Chloride ion concentration data from Agency study wells shows an historical range from 17 to 9,000 milligrams per liter (mg/l)[2]. The chloride ion concentration in the native ground water in the area is typically below 70 mg/l. Elevated values are the result of degradation by saline water or localized land use impacts. Water quality data from selected Agency study wells, tabulated in Table 5, demonstrate the ongoing degradation of water supplies from increasing chloride ion concentrations. Given the location of these wells, the increasing chloride ion concentrations are likely the result of seawater contamination. In addition to the wells showing clear evidence of contamination, several other wells show some evidence of increasing chloride and/or electrical conductivity values. Considering the location of these wells, this may indicate the onset of seawater contamination. These wells are also listed in Table 5 - Summary of Agency Study Wells with Elevated Chloride Ion Concentrations. The locations of the wells are on Figure 8.

Areal Distribution of Elevated Chloride Ions. The areal distribution of saline water degradation of ground water supplies in the North County area, as portrayed by the 100 mg/l and 500 mg/l chloride ion contour lines for various years, is presented on Figure 15 - Seawater Intrusion. The Springfield Terrace and areas adjacent to the Slough are impacted. The impacted area has increased appreciably since 1979. Elevated chloride concentrations now occur in a 1 to 4 mile wide strip along the coast throughout the study area. Since 1979, approximately 927 additional acres overlie aquifers that have become intruded to the 500 mg/l level, and 2,190 additional acres to the 100 mg/l level.

Relationship Between Chloride Ion Concentration and Well Depth. Chloride ion contributions to the ground water system result primarily from mixing of aquifer water with sources of saline water. In most cases this is a saline water body such as the ocean. However, in the study area this also includes the Slough. In either case, the source of saline water is at an elevation of approximately sea level and below. The degradation of ground water by the introduction of seawater from either the Slough or the ocean, therefore, can only affect ground water quality within aquifers at elevations below sea level. Given this relationship, some

[2] Drinking water standard for chlorides is 250 mg/l.

understanding of the source of saline degradation is possible through the evaluation of the chloride concentrations and elevations of well perforations. The relationship of chloride ion concentration to elevation of perforated interval was evaluated in the Pajaro-Springfield, and Highlands subareas. All wells with water quality data for which water level, wellhead elevation, and well construction data were available were reviewed. From these data, plots of chloride ion concentration verses elevation of perforated interval were prepared.

Table 5. Summary of Agency Study Wells with Elevated Chloride Ion Concentrations

Well No.	Subarea	Screen Elevation (feet)	Chloride Concentration (mg/l)		Ground Water Elevation (ft)		Comments
			1979	1993	1979	1993	
Wells with Significant Intrusion Since 1980							
12S/02E-19A02	Pajaro	Unknown	<20	>400	0 to -5	-20	
12S/02E-30M02	Springfield Terrace	-148 to -168	25	>375	-5	-10	
12S/02E-31K01	Springfield Terrace	-134 to -189	180	>300	0 to -5	-5 to -10	Has varied widely since 1960
12S/02E-32N01	Springfield Terrace	-89 to -239	50	75 to >375	-15	-15	Spiked in mid-1980s only
13S/02E-06R01	Springfield Terrace	-24 to -94	115	>300	-5	-5 to -10	
13S/02E-03Q1	Highlands South	-84 to-180	120	?	-10	?	Rapid increase in Cl- in 1984
Wells with Some Evidence of Elevated Chloride or Electrical Conductivity							
12S/02E-10J02	Pajaro	-46 to -122	90	90	0	-10	Spiked to > 200 in 1990
	Springfield Terrace	-53 to-204	85	140	-5	-15	Spiked to > 170 in 1986
12S/02E-30N01	Springfield Terrace	-69 to -109	80	230	-5	-10	Spiked to > 310 in 1986
13S/02E-10J01	Highlands South	-68 to -524	85	140	-20	-25	Increasing since 1990
13S/02E-05C02	Springfield Terrace	-92 to-307.7	55	70	5	3	Upward trend since 1980

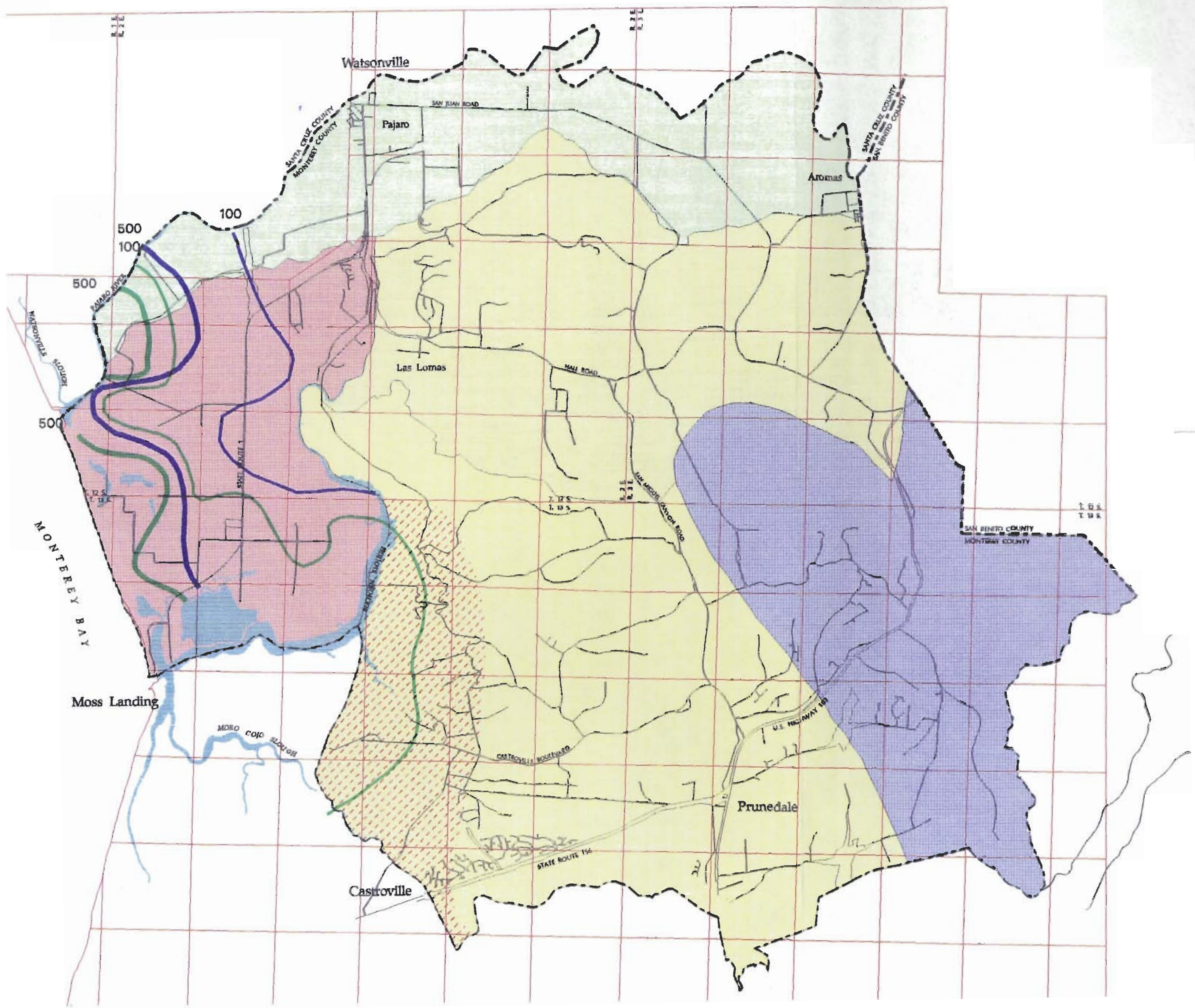


Figure 15

SEAWATER INTRUSION

- Pajaro
- Springfield Terrace
- Granite Ridge
- Highlands North
- Highlands South
- 1993 Levels (500 mg/l)
- 1993 Levels (100 mg/l)
- 1979 Levels (500 mg/l)
- 1979 Levels (100 mg/l)
- Zone of Elevated Cl- Ions
- Study Area Boundary
- County Line
- Township and Range Grid

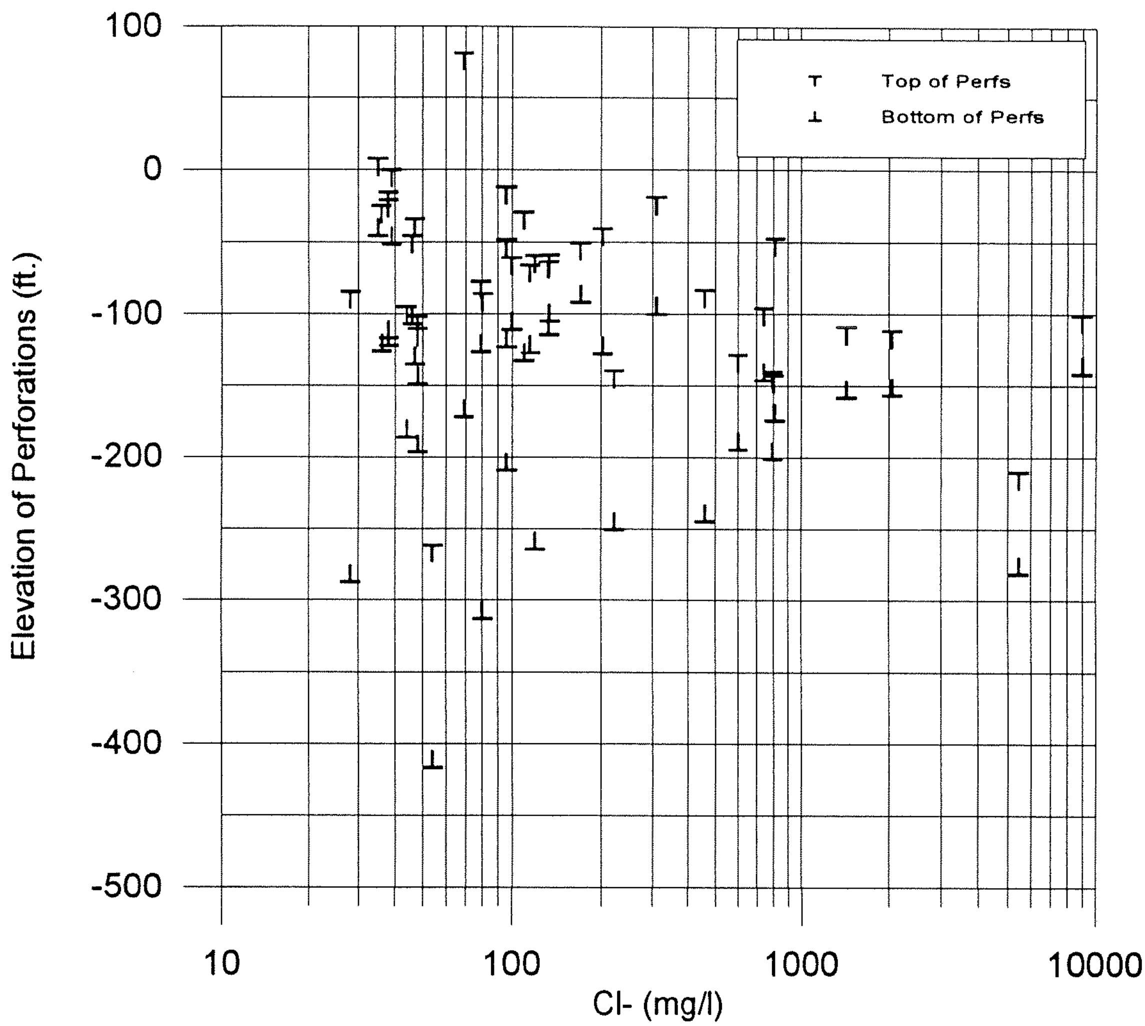
MILES

0 1.25 2.5

Sources: MCWRA, Fugro

North Monterey County Hydrogeologic Study

Figure 16 Chloride Ion Concentrations verses Elevations - Pajaro-Springfield Area



Review of Figure 16 Chloride Ion Concentrations verses Elevation - Pajaro-Springfield Area, shows that elevated chloride ions concentrations in the Pajaro-Springfield subarea appear to be centered on a zone between -100 and -130 MSL. The highest value, approaching 9000 mg/l[3], was displayed in a coastal monitoring well maintained by PVWMA. The highest chloride concentrations are being displayed in wells with limited perforations centered on this zone. As the length of the perforated interval increases, the chloride ion concentration declines. This reflects blending with less saline water within the water column. Of note is a single well (12S/2E-30E01) with elevated values of 5400 mg/l and perforation between elevation of -215 and -275 feet. This well is located on the northwestern edge of the Springfield Terrace close to the Pajaro River. This well likely evidences seawater intrusion in the mouth of the Pajaro River alluvium.

[3] The concentration of chloride ions in seawater is approximately 19,000 mg/l.

Figure 17 Chloride Ion Concentration verses Elevation - Highlands Subarea

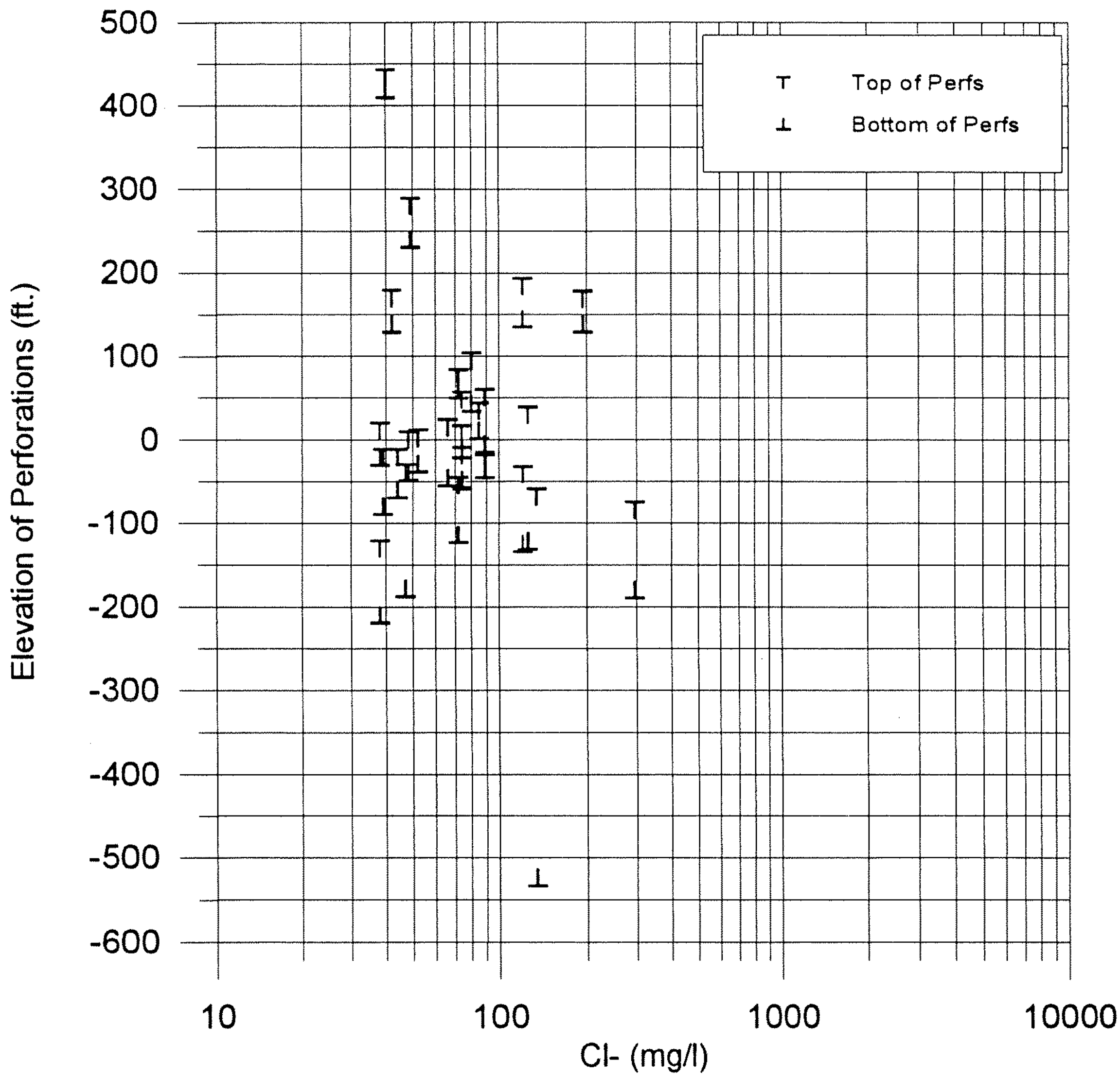


Figure 17 Chloride Ion Concentration verses Elevation - Highlands Subarea, presents chloride ion concentrations verses depth for the Highlands subarea. Maximum chloride ion concentration in this area is approximately 300 mg/l. The data suggests three possible zones of chloride degradation. Two wells (13S/03E-16C3 and -17B1) located in the eastern portion of the subarea and with perforations substantially above sea level display elevated chloride ions of up to 200 mg/l. The mechanism for this degradation is not known but is possibly due to either agricultural return flows or water softener brine discharged through domestic septic systems. Many of the wells that have perforations straddling sea level display slightly elevated concentrations of chloride ions. Many of these wells are located proximate to the Elkhorn Slough and may be evidence of leakage from this water body. Data from one well in the study area with

perforations between depths of -84 to -180 MSL suggests elevated chloride ions at this depth. This well is located immediately adjacent to Elkhorn Slough. The elevated chlorides may indicate leakage from the slough or reflect intrusion from the Coast. The well's perforated interval is consistent with the -100 to -130 MSL zone described in the Springfield area.

Elkhorn Slough Area. The evidence above suggests saline degradation of ground water four miles inland in wells adjacent to the Elkhorn Slough. Previous investigators (Johnson, 1983, DWR 1981), have also suggested that the elevated chloride levels near Elkhorn Slough could be the result of either lateral intrusion of seawater from Monterey Bay or vertical leakage of saline waters from the Slough into the underlying aquifer units.

Distinguishing between the possible sources of saline degradation of the ground water can be assisted through the review of the recent history of Elkhorn Slough. Prior to 1909, Elkhorn Slough was a fresh to brackish water estuary that discharged to the Salinas River. During this period, the Salinas River shared a common mouth with the Pajaro River (Schwartz, 1983). After 1909, Elkhorn Slough became a closed estuary that seasonally breached the beach discharging to the Pacific Ocean. In 1947, the Army Corps of Engineers created Moss Landing Harbor and initiated dredging operations to keep the harbor mouth open. Since then, Elkhorn Slough has been subject to tidal surge and the mixing of fresh and seawater.

The cultural history of the land adjacent to Elkhorn Slough also has bearing on the changes in Elkhorn Slough water quality. Land reclamation efforts in the 1920's resulted in the building of levees along the eastern side of Elkhorn Slough for the development of pasture land for the Elkhorn Farm Dairy. The levees remained in place until 1983 when the area was allowed to return to tidal action as part of a restoration plan. The abandonment of the levees has allowed this area to be seasonally and tidally inundated with Slough water.

Given the history discussed above, the Slough can be considered to have been under tidal influence with the open ocean since 1947. The portion which historically was the Elkhorn Slough Dairy has been under tidal influence since 1983. The recent changes in the flow regime of Elkhorn Slough has undoubtedly resulted in significant changes in the overall water quality of Elkhorn Slough. Historical water quality data are unavailable, however, much can be inferred from recent water quality data. Data for Elkhorn Slough available from the Elkhorn Slough Foundation (1992-94) show the water within the Slough to display EC and chloride ion concentrations ranging from approximately 80 to 110 percent of the concentration of seawater at most sampling locations for most times of the year. These data are included in Appendix E - Water Quality Data. Seasonal variation in these water quality parameters are visible in the data from the Carneros, North Marsh and South Marsh areas, with water quality data showing a freshening in response to surface runoff. However, water quality rapidly returns to concentrations approximating seawater because of tidal mixing. Water quality in Elkhorn Slough prior to the opening of the harbor mouth is estimated to have had a water quality similar to the values now collected at the Potrero Road sampling stations; values that range from 2 to 40 percent the concentration of seawater, i.e. considerably fresher.

The average quality of the water in the Slough approximates that of seawater except in response to significant runoff events. In the Slough, seawater, as surface water, overlies aquifers containing fresh ground water. Because seawater is denser than fresh water and the current water levels are below sea level within the underlying aquifers, seawater within the main Slough and its fingers moves vertically (downward) into the underlying aquifers. While this is not seawater intrusion in the conventional sense (horizontal movement of seawater through the aquifer from offshore outcrops), it degrades fresh ground water in areas below and adjacent to the Slough.

Data for wells in the area show a possible correlation between the increasing salinity of the Slough after the abandonment of the levees and the water quality degradation of wells of this area:

- The chemical hydrograph from State Well No. 13S/02E-03Q01 (located approximately 1300 feet from the edge of the Slough and perforated from elevation -84 to -180), displays gradual increase in chloride ion concentration between the years of 1960 and 1983. In 1983, chloride ion concentration increased sharply from approximately 90 mg/l to 300 mg/l over a period of 2 years.

- A similar response is suggested in the record of State Well No. 13S/02E-10J01 (located approximately 700 feet from a finger of the Slough and perforated between elevations -68 and -524). The increase in this well is not as pronounced as well No. -03Q1 likely due to the greater range of perforation of this well resulting in the blending of water from multiple zones within the aquifer system.

- This localized infiltration of seawater is also apparent in the data from the Dolan Road Monitoring Well constructed as part of this study. This well was constructed on Dolan Road west of Russo Road and approximately 500 feet from a finger of the Slough. A grab sample of the Slough water collected at this location revealed the water to be have an electrical conductivity in excess of 40,000 micromhos/cm. The geophysical log from the well shows a zone of high electrical conductivity (low resistivity) within an interval logged as sand (typically high resistivity) at an elevation of 0 to approximately -10 feet. Underlying and separated from this zone by intervening clay strata are intervals of sediments containing fresh ground water to a final depth of 600 feet. Additionally, water quality data from the shallow well (perforations elev. -60 to -110) at this location reveals the water to be fresh, while showing elevated chloride ions. These data are all consistent with the localized infiltration of seawater from the Slough.

The mechanism for movement of the seawater from the Slough into the aquifer system is not direct. The Slough depositional environment is one of low-energy, resulting in the deposition of thick sequences of clay and silt, and locally significant deposits of peat. These materials have low permeability and slow the vertical migration of the water from the Slough into the underlying aquifer system. However, given the downward vertical gradient resulting from below sea level water levels within the underlying aquifer units and the large surface area of the Slough, the resulting flux through the materials underlying the Slough is increasingly significant. Additionally, the Slough environment is incised into a sequence of eolin and fluvial sediments. At the perimeter of the Slough, the mechanism for movement of seawater from the Slough is enhanced because the low permeability sediments are not as thick and horizontal permeability is high.

The thickness of the low permeability materials underlying the Slough has been documented to be as great as 600 feet in the center of the ancestral valley. Shallow borings in proximate areas document varying thickness of clay and low permeable materials. Schwartz (1986) documents approximately 30 to 60 feet of interbedded clay, silt, and clayey-sand in CALTRANS borings drilled parallel to the Highway 1 Bridge over the Slough. At other locations, well logs immediately adjacent to the Slough and tributary fingers show sequences of low permeability materials ranging from 10 to 70 feet thick. Although some thickness of clay is documented in most of the borings and well logs, few of the borings document the sequence as being entirely clay. Most document some interbeds of sand, gravel or sandy clay.

For purposes of considering the significance of leakage from the Slough on the area's water balance and ground water quality degradation, an estimate of the amount of leakage from the Slough that would occur under Darcian flow was calculated utilizing the available water level data, lithology, and stratigraphic data. Average water levels underlying the Slough area were estimated (from the water level contour maps) to be approximately -10 to -30 feet MSL. Because the actual thickness and equivalent hydraulic conductivity of the materials underlying the Slough display significant variation and are not precisely known, a range of values for these variables were utilized. The calculations are provided in Appendix H. A summary of the results of the analysis are presented in Table 6 - Darcian Flux Through Elkhorn Slough Bottom.

Table 6. Darcian Flux through Elkhorn Slough Bottom

Head Difference (feet)	Hydraulic Conductivity (cm/sec)	Hydraulic Conductivity (feet/year)	FLUX (in feet per year) Thickness of Low Permeability Materials			
			10 feet	20 feet	50 feet	100 feet
10.00	0.000001	1.03	1.03	0.52	0.34	0.1
10.00	0.000005	5.2	5.15	2.6	1.7	5
10.00	0.00001	10.3	10.3	5.2	3.4	1.0
20.00	0.000001	1.03	2.06	1.03	0.41	0.21
20.00	0.000005	5.2	10.3	5.15	2.05	1.05
20.00	0.00001	10.3	20.6	10.3	4.1	2.1

Review of Table 6 reveals that, depending on the assumptions, the flux of water through the Slough bottom into the aquifer system ranges from 0.1 to 20 feet per year. The most reasonable estimate is considered to be a median value of 3.4 feet/year for conditions of 10 feet of head difference, 50 feet of low permeability materials having an average hydraulic conductivity of 0.00001 centimeters per second. This flux rate compares with the areal recharge rate for the study area of approximately 0.15 feet, suggesting that leakage from the Slough is a significant component of the overall water balance of the area. The Slough has an area of approximately 2,500 acres. Excluding the central portion of the Slough which has been demonstrated to be underlain by a great thickness of clay materials, the fingers and areas flanking the central Slough cover approximately 1,000 to 2,000 acres depending on tides and season. Considering this area, saltwater leakage (recharge) from the Slough may be on the order of 2,000 to 4,000 acre-feet/year.

Elevated Nitrate Ion Concentrations. Nitrate ion contamination occurs commonly in unconfined and semi-confined aquifers that underlie areas of intense agricultural activity, where excess applied fertilizer can migrate to the ground water body by leaching from the soil or deep percolation from surface water bodies fed by agricultural runoff. Elevated nitrate ion levels also exist near septic systems, which contain high nitrogen concentrations in their leachate. Residences that obtain their water supplies from shallow domestic wells often also use septic systems, increasing their risk factor for nitrate ion contamination of their drinking water supply.

Nitrate ion contamination is a public health concern because children born to mothers who consume drinking water with excessive nitrate concentrations during pregnancy have an increased risk of contracting infant methemoglobinemia (blue baby syndrome). A state and federal maximum contaminant level (MCL) of 45 mg/l has been established for nitrate ion concentration as NO_3. Nitrate ion concentrations in excess of the MCL have been observed in Agency Study Wells in a large portion of the Springfield subarea, as well as locally in small water system data in the Pajaro, Highlands and

Granite Ridge subareas. The available historical nitrate data were sorted by subarea and are contained in Appendix E - Water Quality Data. The data are summarized in Table 7 - Summary of North County Nitrate Ion Data.

Table 7. Summary of North County Nitrate Ion Data

Subarea	No. Of Wells Sampled	No. Of Wells w/ NO3 > 45 mg/l	Highest NO3 Value (mg/l)	Date of High Value
Granite Ridge	11	2	90.8	9/1/83
Highlands	33	11	155.1	7/1/85
Pajaro	25	3	196	10/4/93
Springfield	58	28	399.5	7/1/87

Granite Ridge Subarea. Two of the 11 wells with water quality history are currently violating the state and federal standard for nitrate. Nitrate ion concentrations at well 12S/03E-31E01 located in San Miguel Canyon has been observed at concentrations ranging from <10 mg/l to 65 mg/l. At well 13S/03E-08D01 along Echo Valley Road, the nitrate ion concentration has typically ranged from 50 to 90 mg/l, although the most recent measurement was 15 mg/l, well below the MCL. Nitrate concentrations for the other sample wells in the Granite Ridge subarea typically range from <10 to 20 mg/l. Historically, significant numbers of wells have been abandoned in this subarea due to nitrate contamination.

Highlands Subareas. The occurrence of elevated nitrate ions in this subarea is variable, likely the result of varying land use and sampling results from wells perforated in shallow, perched water tables. A third of the Agency study wells in the area have exceeded the MCL for nitrate ion, while other third of wells in the area display low concentrations (less than 10 mg/l). Levels as high as 155.1 mg/l have been reported (State Well No. 12S/02E-25N01).

Pajaro Subarea. One of the sample wells in the Pajaro Valley along San Miguel Canyon Road (12S/03E-18E04) has nitrate levels that have increased from near zero in 1981 to near 200 mg/l in 1993. Three other sample wells showed evidence of excessive nitrate levels elsewhere in the Pajaro subarea. The low number of wells with elevated nitrate ion concentrations likely reflects the confined nature of the majority of the Pajaro subarea.

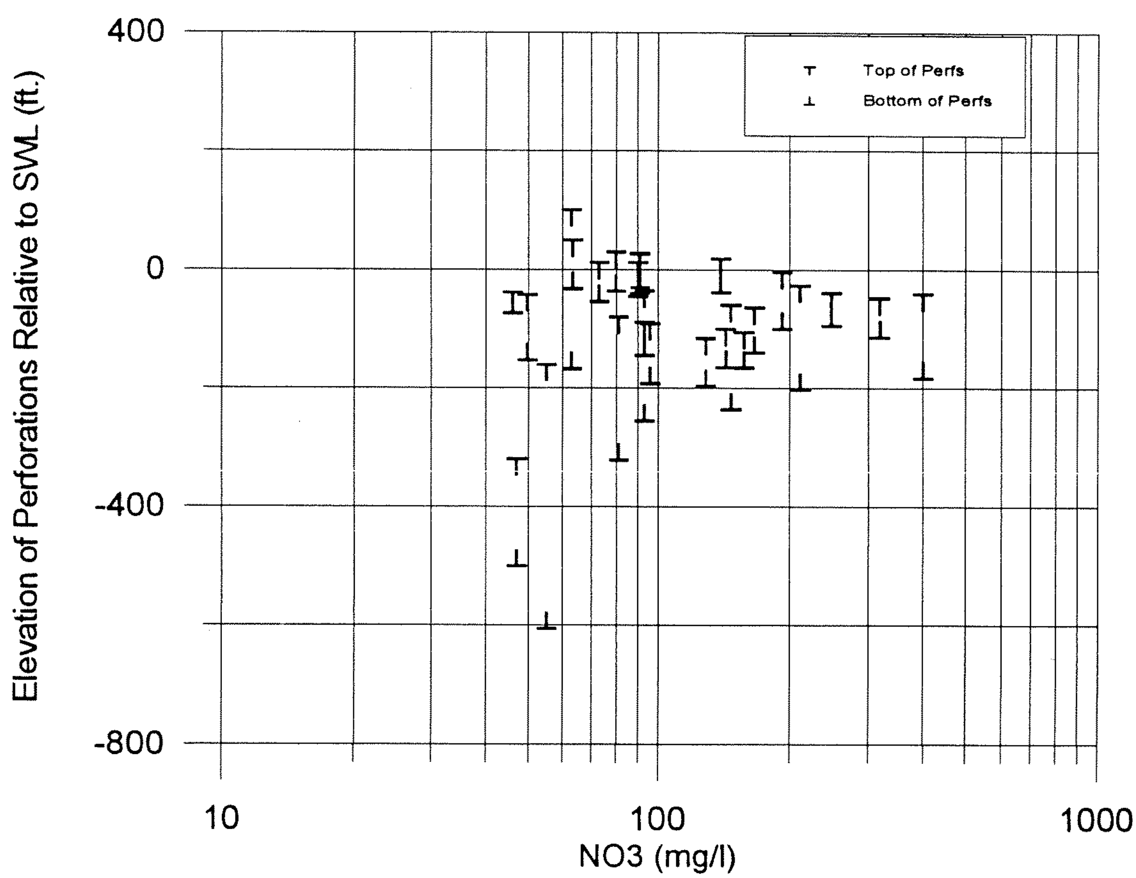
Springfield Subarea. High nitrate ion concentrations in the Springfield subarea occur in the area west of Highway 1 bounded by Bluff Road to the north and Bennett Slough to the south. Contamination appears chronic in most wells, sporadic in a few others. The nitrate concentration has exceeded 150 mg/l in several wells and 300 mg/l in one well (12S/02E-30N1). There is limited evidence from a single Springfield area well (12S/02E-32C1) for a correlation between short-term peaks in the nitrate concentration and significant recharge events. Conceptually, an increase in deep percolation can leach accumulated nitrogen compounds from the soil column into the saturated zone.

This phenomenon is also suggested in the comparison of the chemical and water level hydrographs from some of the other wells in the study area.

Relationship Between Nitrate Ion Concentration and Well Depth. Nitrate ion contributions to the ground water system result primarily from either septic systems or agricultural practices. In either case, the source of nitrogen is essentially surface derived. The inference of surface derived application of nitrogen compounds is that nitrate ion concentrations should decrease, due to mixing and dilution, with increasing depth below ground water table. Indeed, the construction of deeper wells has, in most cases, been an effective interim method to obtain potable water in areas with elevated nitrate ion concentrations.

The relationship of nitrate ion concentration which exceed the MCL to depth below ground water table was evaluated. All wells for which water quality data, water level, wellhead elevation, and well construction data were available were reviewed. A plot of depth of perforations below static water level verses nitrate ion concentration was prepared. Figure 18, Nitrate Ion Concentrations vs. Depth of Perforation below Static Water Level, shows a correlation between depth below water table and nitrate ion concentration.

Figure 18 - Nitrate Ion Concentrations Vs. Depth Of Perforation Below Static Water Level



Review of Figure 18 reveals that, with a few exceptions (possibly due to well construction), wells that display elevated nitrate ion concentrations have the uppermost perforations less than 125 feet below the water table. The implication for design of potable water supply wells is obvious; where possible, wells should be designed with the upper most perforations a minimum of 125 feet below the static water level.

Areal Distribution of Nitrate Ions. Given the vertical distribution of nitrate ion concentration, it is difficult to delineate areas of elevated nitrate ion based on existing well data. The comparison between wells of varying depth and differing perforated intervals is misleading. For this reason, nitrate ion concentration was not mapped. A predicted distribution of nitrate ion loading associated with current and future development in the various subareas utilizing the GIS model in conjunction with the existing ground water models is presented below with the build-out scenarios.

Other Water Quality Issues - Solid Waste Disposal Sites (Landfills). The study area contains two licensed waste disposal sites; Lewis Road Disposal Site, operated by the County of Monterey, and Crazy Horse Canyon Waste Disposal Site operated by City of Salinas. Records from these disposal sites were reviewed to assess the possible impact on the ground water resources of the study area.

Lewis Road site is within the Highlands subarea and is underlain by Aromas Sand. Ground water immediately underlying the site occurs within a perched aquifer system of limited extent. The site has been thoroughly investigated and routinely monitored. To date, no impacts to the regional ground water system have been documented (Woodward-Clyde, 1994).

The Crazy Horse Landfill is within the Granite Ridge subarea. This site has documented water quality impacts consisting of concentrations of volatile organic compounds elevated above drinking water standards. A remedial action program is being implemented under jurisdiction of the Regional Water Quality Control Board. To date, the contamination is localized, and given the low permeability hydrogeologic setting, is not considered a regional impact.

WATER BUDGET

The water budget analysis includes the assessment of all components of the hydrogeologic system: extractions, recharge, and subsurface flow. An analysis of demand within the study area was performed utilizing both the GIS and existing ground water models. Recharge, seawater intrusion, storage depletion and subsurface flow were evaluated by linking the two existing versions of the Integrated Ground and Surface Water Model (IGSM) ground water models of the study area (Pajaro Valley and Salinas Valley). Modeling work was performed by Montgomery Watson (MW) and is documented in a Technical Memorandum presented in

Appendix F - Technical Memoranda. The GIS was utilized to construct a demand model that was used to estimate current and future water demand under varying future development scenarios.

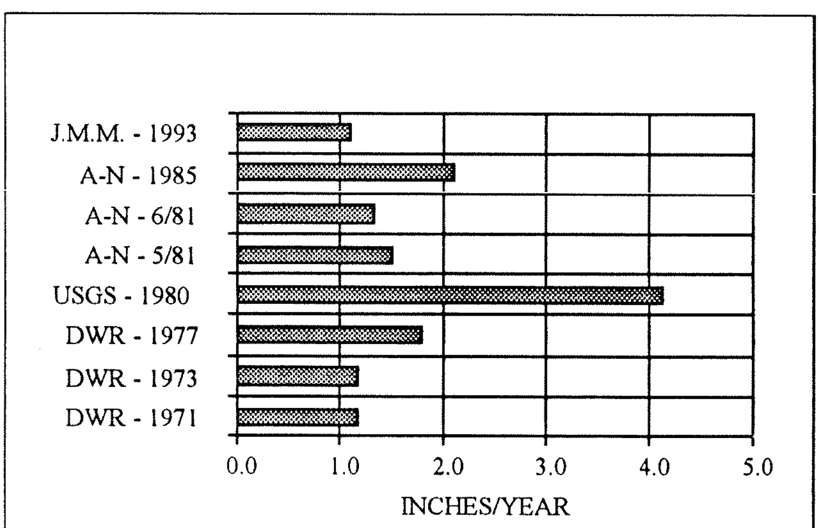
Water Budgets - Previous Studies

The study area, in whole and in part, has been the focus of several previous studies. Each of these studies has presented estimates of the various components of the water budget. For purposes of comparison, these previous estimates are reviewed below.

Supply

Areal Recharge Rate. With the exception of the extreme northern portion of the study area (Pajaro Valley and Aromas) which receives recharge from the Pajaro River, the bulk of the area receives recharge solely from the infiltration of precipitation falling in the study area. The volume of ground water recharge in the area has been estimated in several previous studies. Each of these studies utilized a similar approach to estimating the volume of areal recharge. The volume of precipitation received in the study area was reduced by the volume of water believed to be leaving the area either as runoff or evapotranspiration. Estimation of the volume of precipitation that ultimately becomes ground water recharge is dependent on assumptions regarding soil and climatic conditions. Soil properties control the amount of runoff and the volume of water stored in the subsurface soil matrix (root zone). Climatic conditions control the amount of water lost to evaporation and plant transpiration. Minor differences in the assumptions can significantly affect the estimated volume of recharge. The estimates of recharge by the various investigators are presented in Chart 1 - Average Annual Areal Recharge Rate - North County Area, below:

Chart 1 - Average Annual Areal Recharge Rate - North County Area



The chart reveals the estimated average annual areal recharge rate ranged from 1.2 to 4.15 inches. Of interest, with one exception, all estimates cluster between 1.2 and 2.1 inches. The outlying value of 4.15 inches was the value suggested by the USGS. Review of the USGS methodology reveals an assumption that accounts for the significant variation between their estimate and other investigators. The USGS incorrectly assumed that ground water recharge occurs when monthly precipitation (corrected for runoff) exceeds monthly evaporation. This approach results in significant recharge in the winter months. However, this approach neglects the volume of water that is retained in the soil matrix (under capillary tension) which is later extracted by vegetation during subsequent months with deficit precipitation relative to evaporation. Even in sandy soils, such as those that dominate the study area, the volume of water held in the root zone can be as much as 3 inches. This water that is held in soil storage supports growth in native and non-irrigated crops through the spring and early summer. The oversight of soil storage by the USGS was identified and corrected for in the subsequent study by A-N. The studies performed by DWR do not explicitly document the assumptions utilized in developing their respective estimates. However, based on the suggested values and these organizations understanding of on-farm water relationships, it is assumed that soil storage was accounted for in the DWR analysis. Soil-moisture relationships are integrated into the IGSM model developed by MW.

Recharge Volume. The infiltration of precipitation is the only significant source of recharge to all of the subareas with the exception of the Pajaro subarea which receives the majority of its recharge from the Pajaro River. Calculation of an annual volume of recharge to the area is simply a volumetric calculation of the product of the recharge rate and the area. Table 8 presents a summary of generalized estimates of the volume of recharge for the current study area and revised subareas of the study area utilizing the previous published rates of recharge.

Table 8. Comparison of Estimates of Recharge Volumes (AF/Y)

		Recharge Rate (inches/year)				
Subarea	Acres	DWR 1977	DWR 1971	USGS 1980	A-N 5/81	JMM 1993
		1.8	1.3	4.15	2	1.6
N. County	53,000	7,950	5,742	18,329	8,833	7,067
Pajaro*	6,903	1,035	748	2,387	1,150	920
Highlands North	11,221	1,683	1,215	3,880	1,870	1,496
Highlands South	16,915	2,537	1,832	5,849	2,819	2,255
Granite Ridge	9,787	1,468	1,060	3,385	1,631	1,305
Springfield	8,180	1,227	886	2,829	1,363	1,090

* Pajaro estimate is areal recharge only, does not include river recharge

Pumpage. The previous studies have estimated ground water extractions for purposes of comparison with recharge. Extractions for agricultural irrigation were estimated from land use and crop water duty. Population data was used to estimate residential demand. These extraction estimates from the two most comprehensive studies are presented and compared with recharge estimates in Table 9 - Summary of Annual Water Budget Estimates from Previous Studies.

Table 9. Summary of Annual Water Budget Estimates from Previous Studies

Study, Date (Study Area)	Area (Acre)	Recharge (Acre-Feet)	Agricultural Extractions (Acre-Feet)	M & I Extractions (Acre-Feet)	Overdraft (Acre-Feet)	Overdraft/Acre (Acre-Feet/Acre)
DWR, 1977 (Study Area)	53,700	8,055	21,200	1,800	15,000	0.28
USGS, 1983 (Study Area)	59,300	20,508	32,800	3,500	15,500	0.26

Overdraft. Comparison of the recharge and extraction estimates of previous studies show significant variation in estimated values of both extraction and recharge; however, both studies reveal ground water extractions to significantly exceed recharge and the magnitude of the deficit is comparable. Notable differences in the two studies show the USGS estimate of recharge to be substantially higher; however, the estimates of extractions are also accordingly higher. The resulting overdraft on an area-wide basis is comparable.

The overdraft conditions documented result in the depletion of ground water storage, and in areas adjacent to seawater bodies, seawater intrusion. In the study area, the chronic overdraft has resulted in both of these conditions.

Seawater Intrusion. The previous studies documented the occurrence and advancement of seawater intrusion in the study area. The previous studies, however, did not quantify the volume of seawater intrusion. The intrusion of seawater into the aquifer system has masked the magnitude of storage depletion as ground water in storage has been replaced by seawater.

Water Budget - Ground Water Modeling

Since the completion of the previous studies, advances in computer technology have allowed the development of computer models of hydrologic systems that can simulate multiple sources of recharge, the interaction between surface and ground water, and the extraction and use of ground water. The development of these tools allow the quantitative assessment of the various components of the water budget for an area. The water budget of the study area was evaluated through the combined use of the Pajaro and Salinas Valley ground water basin models developed by Montgomery Watson as part of previous studies. Both ground water models utilize the IGSM code developed by Dr. Young Yoon. Through the use of a linkage routine, the two models, which join in the center of the study area, were used to run simultaneous simulations to quantify the various components of the water budget for the simulation period of 1970 through 1992. After calibration, the models were used to develop water budgets for the newly adopted subareas.

The mathematical basis, development, assumptions, underlying database, and calibration of the two models are documented in previous reports (JMM 1993, MW 1994). The work associated with this project included the refinement of the models to reflect additional hydrogeologic data, the refinement of input data sets, and the recalibration of the models to the available water level data. After recalibration, the existing model elements were aggregated to best approximate the new subareas and parallel simulations were performed to develop water budgets and sustainable yields for each of the subareas. The work performed is documented in a Technical Memorandum prepared by Montgomery Watson presented in Appendix F.

The prior existence of the ground water models provided for the use of powerful tools which could not have been cost-effectively developed for the specific project. Use of the models for this study also provided additional utility of the models to the agencies. However, use of the pre-existing models results in the need for some approximation to appropriately apply the models to the study area and some interpretation of the results to the specific study area. The existing models are comprised of rectangular to triangular shaped polygons (elements) which cover discrete portions of the modeled area. The arrangement of these polygons is a primary input to the models and cannot be changed without complete revision of the model. Additionally, the existing models cover the area between hydrogeologic boundaries and do not respect political and hydrologic boundaries. The North County Study area is defined by both county lines, rivers and drainage divides. This situation required that the existing models be made to fit the project area.

The approximation required to fit the models to the project is most apparent in the approximation of modeled subareas with the formally adopted revised subareas. The subareas developed as part of this study were delineated on the basis of hydrogeologic data. The established subarea boundaries were overlain with the ground water model grids and the model elements were grouped to best approximate the new subareas. The modeled subareas generally are within several percent of the adopted subareas with the exception of the Granite Ridge subarea which is approximately 20 percent larger. This was the best approximation possible in this area because the model grid is coarse and many of the elements in this area include portions of San Benito County. The overall modeled area is approximately 3 percent larger than the study area.

Another required approximation included the consideration of important boundary flows from areas that are in hydrogeologic continuity with the study area but not included in the study area. This is most important in the Pajaro model as the major source of recharge to the northern portion of the model is the Pajaro River which is a boundary of the study area. This required the estimation of streamflow recharge and subsurface flow into the study area which, because of the model configuration, might be occurring outside of the study area.

The IGSM ground water model requires as input, precipitation, climatic, land use, hydrogeology and streamflow data. The sources of these data and the model assumptions and methodologies are summarized in the model documentation for each of the models. From these data, the model estimates areal recharge, gross and net pumpage, seawater intrusion, stream recharge, storage depletion, and boundary inflows and outflows. The results of the simulations are presented by subarea in Table 10 - Simulation Results - Calibration Conditions - 1970-1992.

Table 10. Simulation Results - Calibration Conditions - 1970-1992

	Inflow (AF/Y)				Outflow (AF/Y)	
Model Subarea	Deep[4] Percolation	Recharge from Rain	Recharge from Streams	Recharge from Boundary[1]	Pumping	Change in Storage (AF/Y)
Highlands South	4,260	2,034	0	-110[5]	5,020	-870
Granite Ridge	1,720	1,371	-230	-2,230	610	-1,350
Highlands North	2,670	1,722	+210	-320	4,780	-2,220
Pajaro	2,260	541	—	+6,070[2]	9,030	-700
Springfield	2,670	1,132	-160	+4,070[3]	6,670	-90
Totals:	13,580	6,800	-180	+7,480	26,110	-5,230

1 Positive number indicates ground water flow into the subarea.

2 Includes Pajaro River recharge of 4,254 AF/Y.

3 Includes seawater intrusion of 750 AF/Y and Elkhorn Slough leakage of 2,570 AF/Y.

4 Includes agricultural return and recharge from precipitation.

5 Includes 1,090 AF/Y of Elkhorn Slough leakage.

The modeling results are generally consistent with the interpretations of previous studies. The overall results for the study area show chronic storage depletion for the entire area and each subarea. Total fresh water recharge to the study area from all sources is estimated at 17,740 AF/Y (includes agricultural returns). Total gross pumpage is estimated at approximately 26,110 AF/Y. Overall storage depletion for the storage area is estimated at 5,230 AF/Y. However, an additional 3,320 AF/Y of storage depletion is offset by the combined inflow of seawater from the ocean and the Slough, bringing overall annual storage depletion to approximately 8,550 AF/Y.

Comparison of the model calculated inflows and outflows for each of the subareas reveal the interdependency of the subareas and the lack of any significant hydrogeologic boundaries. The model confirms and quantifies the occurrence of subsurface flows between various subareas. Generally, ground water flows from the Granite Ridge subarea into the adjoining subareas of Highlands North, Highlands South, and the Eastside area. The model also confirms the flow from the Highlands South subarea into the Pressure area of the Salinas Valley. In the Pajaro subarea, tributary subsurface flow derives from areas north of the Pajaro River. The net result of the inflows and outflows between areas are incorporated in the storage depletion estimates for each subarea.

Recharge in the study area is limited to the infiltration of rainfall, streamflow, and applied water. In the undeveloped areas, the annual infiltration of rainfall is estimated at between 0.9 and 1.8 inches and results in an average value of approximately 6,800 AF/Y. These values are consistent with the previous suggested values discussed above. In the developed areas, recharge is also derived from applied agricultural water and septic return flows and is estimated as an additional 6,780 AF/Y. This estimated return flow is a function of land use and will change if land uses are converted to uses with differing consumptive uses. With the exception of the Pajaro subarea, stream recharge is not a significant component of recharge to any of the subareas. In the Pajaro subarea, infiltration from the Pajaro River is the major component of recharge and is estimated at 4,254 AF/Y.

Sustainable Yield. Utilizing the model results, MW developed estimates of the sustainable yield of the study area and various subareas were developed. Sustainable yield is defined as the amount of annual pumping not causing additional ground water declines from 1992 conditions and/or not causing additional seawater intrusion. These estimates are presented in Table 11 - Sustainable Yield.

Table 11. Sustainable Yield

Subarea	Historical Pumping (AF/Y)	Sustainable Yield (AF/Y)	Difference (AF/Y)	Percent Reduction
Highlands South	5,020	4,390	-630	13
Granite Ridge	610	610	0	0
Highlands North	4,780	2,920	-1,860	39
Pajaro	9,030	6,490	-2,540	28
Springfield	6,670	0	-6,670	100
Totals:	26,110	14,410	-11,700	45

The estimates above show that to achieve sustainable yield, significant reductions in pumping will need to occur in all of the subareas with the exception of the Granite Ridge subarea. The required reductions range from no reduction in the Granite Ridge subarea to complete cessation of agricultural pumpage in the Springfield subarea. The cessation of agricultural extractions in Springfield is required because, although recharge does occur, water levels needs to rise above sea level in order to avoid further seawater intrusion. It is assumed that minor pumpage for domestic supply will continue. The complete cessation in agricultural pumpage in Springfield is consistent with the recommendations of the Pajaro Valley Water Management Agency Basin Management Plan (MW, 1993). No expansion of pumpage can occur in the Granite Ridge subarea, as it is estimated to be at sustainable yield.

The estimates of sustainable yield developed by MW contain several assumptions. The sustainable yield values are gross pumpage and include assumptions regarding return flows from various land uses. For this reason, the sustainable yield estimates assume that current land use remains approximately static and that reductions in extractions occur in proportion to the current land use. Changes in land use will affect return flows and may change the sustainable yield for a subarea. Additionally, MW estimates assume the maintenance of existing inflows and outflows between various subareas. The magnitude of these flows is a function of regional ground water gradients. Changes in water use in various subareas or hydraulically adjacent areas not within the study area (Salinas Valley or north of Pajaro River) could change the magnitude of the subsurface flow between subareas.

Because the estimates of sustainable yield presented above contain many assumptions, it is useful to evaluate the components of natural fresh water recharge within the study area. This methodology results in the calculation of a "water crop" for the area that is not dependent on return flows from various land uses. This water crop can then be compared to estimates of net pumpage (consumptive use) for any land use. Utilizing this methodology and the values from the model for recharge resulting from percolation of rainfall and river infiltration, total annual average recharge to the area is 11,050 acre-feet.

Ground Water Storage

The volume of ground water in storage within an area controls the area's ability to tolerate periods of drought and/or extractions in excess of the annual recharge rate. Areas with a large volume of ground water in storage can maintain extraction rates that exceed annual average recharge rates for multiple years without significant impacts. However, areas with limited storage will experience water supply shortages relatively rapidly. Additionally, the volume of ground water in storage represents the volume of water available for dilution of contaminants. Again, areas with large volume of ground water in storage have a greater dilution factor compared to areas with less storage

The total ground water in storage is the volume of water existing within void space of the water-bearing materials. The amount of this void space which holds retrievable water, commonly know as specific yield, is estimated to range from 20 percent by volume for the eolian sands of the Aromas Formation to less than 5 percent for the fractured granite (Freeze and Cherry, 1979). Utilizing the GIS to calculate the volume of materials between bedrock surface and current water levels and these specific yield values, the total ground water in storage was estimated for each of the subareas and is shown in Table 12 - Ground Water in Storage.

Table 12. Ground Water in Storage

Subarea	Acreage	Average Saturated Thickness (feet)	Volume of Saturated Materials (Ft^3)	Specific Yield (percent)	Storage (acre-feet)	Useable* Storage (acre-feet)
Highlands North	11,205	407	4,561,235	20	912,247	13,169
Highlands South	17,050	474	8,073,570	20	1,614,714	35,460
Granite Ridge	9,366	35	326,140	5	16,307	8,091
Springfield	8,078	598	4,833,905	20	966,781	0
Pajaro	6,972'	504	3,514,045	20	702,809	580

*Storage above sea level.

The volume of ground water in storage presented in Table 12 is all the ground water contained in the sediments. This volume can be misleading since the majority of this water is located below sea level. Alternatively, useable ground water in storage is defined as the volume of ground water above sea level. This definition is useful in a coastal basin. When water levels decline below sea level, depleted ground water storage is replaced with sea water. By this definition, the Springfield and Pajaro subareas have little useable storage capacity, while some useable storage remains in the Highlands subareas. The definition of useable storage above does not, due to its elevated topography, apply to the Granite Ridge area.

The reduction of useable storage capacity in these areas is the result of chronic overdraft for the last 40 years. As the result of chronic overdraft, storage in the study area has been steadily declining. This declining storage is manifest as declining water levels throughout the area. The cumulative effects of storage depletion are illustrated on Figure 14, which shows the easterly migration of the zero elevation ground water contour over the last 25 years. Water level data analyses discussed above suggest an average water level decline of approximately 0.5 feet per year.

WATER DEMAND

General Statement

An estimate of water demand for the study area was developed by MW as part of the IGSM modeling of the study area. The IGSM calculates water demand from data inputs of land use and climatic information. From these data, an estimate of pumpage was derived for modeling purposes. While the use of IGSM can accurately estimate water demand, the use of a GIS water demand model would be more efficient and flexible in evaluating changes in water demand in response to land use changes. To facilitate easier analysis of water demand, a GIS water demand model was developed for the North County area. The demand model was applied to both current land use and future land use ("build-out"). Remarkably, the GIS and IGSM, while approaching demand with very different methodologies and input, developed results within ten percent of one another. This correlation provided the confidence for developing future demand estimates in the GIS. The methodologies and results of the GIS study are discussed in this section with supporting material contained in various appendices.

Methodology

The amount of water required within the area is a function of the types of land uses in the area. Estimates of water use (water duty factors) have been developed for agriculture, residential, and other land uses. If the acreage of a crop is known, the water use per acre can be applied and a reasonable estimate developed. The same holds for residential and other land uses.

Each individual parcel of land was incorporated into the GIS computer database. Information regarding these parcels was included in the GIS: size, land use, zoning, and ownership. Each type of land use was assigned a water duty factor, which is a volume in acre-feet per year estimated to be consumed by the typical activities in that land use. Each parcel in the inventory was then multiplied by the corresponding water duty factor, resulting in the total estimated demand for water under current conditions. Each of these concepts is discussed more fully below.

Characterization of Land Use

With certain exceptions, the land use of North County can be characterized by row crop agriculture and suburban and rural residential development. The area contains the more urbanized Prunedale, which has higher residential density and a commercial component because of its proximity to US 101. Land use for the North County area is shown on Figure 19.

Hydrogeologic Subareas. The subareas are those described previously in this report and adopted by the TAC. Refer to Figure 10 for their location.

Pajaro. The Pajaro subarea includes the communities of Aromas and Pajaro. The majority of the area is utilized for agriculture, primarily vegetable and strawberry crops. Industrial land uses associated with produce preparation and shipping occur along the Southern Pacific Railroad alignment in Pajaro. While the Pajaro Valley may see additional minor residential growth, it will not experience a considerable net increase in water demand. Most of the arable land in the valley is currently under cultivation. Conversion to residential, unless of a very high density, would likely lower water demand.

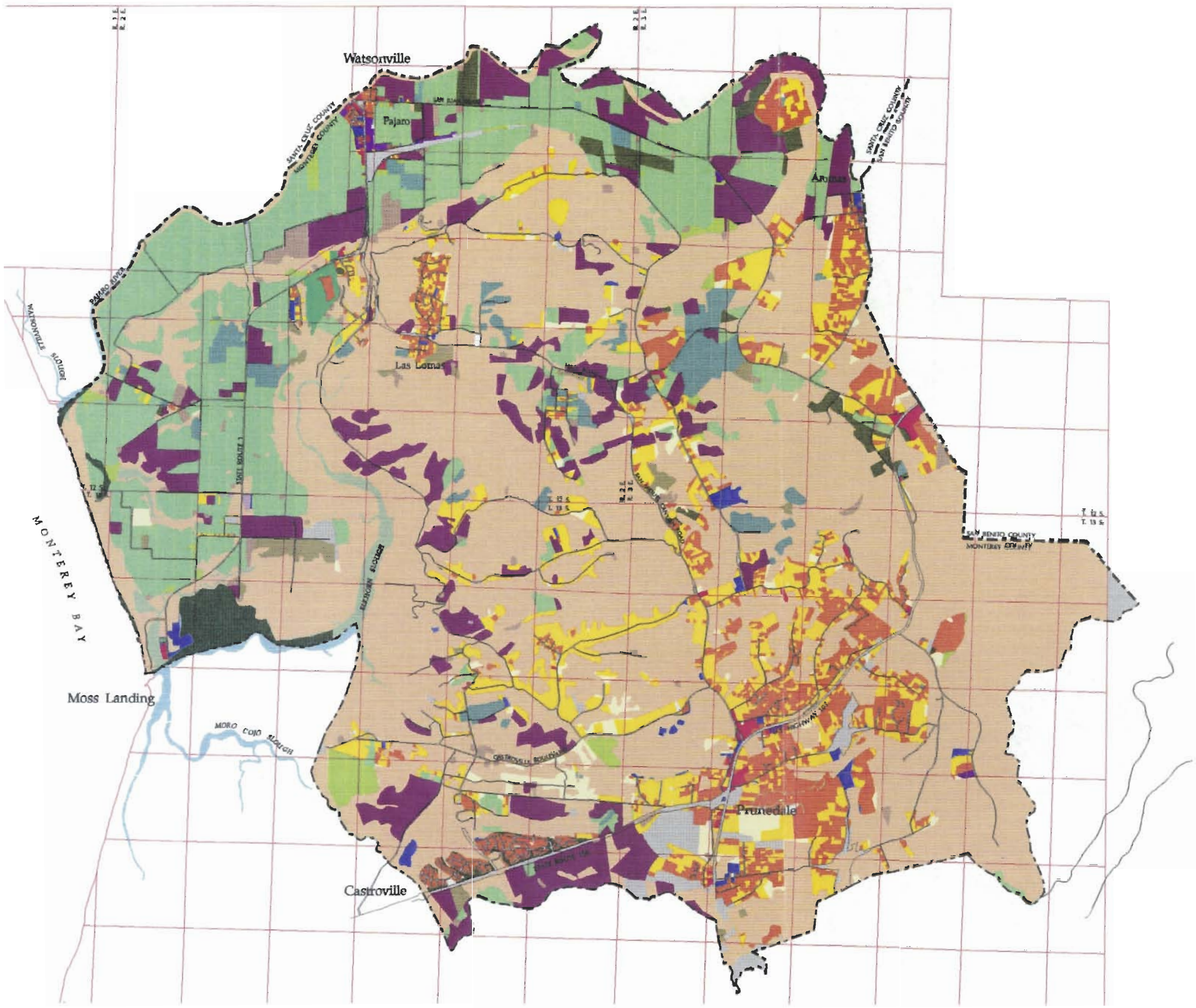


Figure 19

NORTH COUNTY LAND USE

- Urban Residential
- Suburban Residential
- Rural Residential
- Commercial/Office
- Industrial
- Truck Crops
- Berries
- Field Crops
- Flowers/Mushrooms
- Fruits/Nuts
- Pasture
- Vineyard
- Grazing
- Other Agriculture
- Recreation Open Space
- Conservation Open Space
- Public Facilities
- Utilities/Common Areas
- Uncoded

MILES

0 1.25 2.5

Sources: Monterey County, Bureau of Rec.
North Monterey County Hydrogeologic Study

Highlands North and South. The Highlands North subarea includes the community of Las Lomas. The major current land uses of this subarea are rural residential, native vegetation, and irrigated agriculture. The Highlands South subarea contains the Oak Hills development northeast of Castroville, the Elkhorn Slough Estuarine Sanctuary, and several rural residential subdivisions. The amount of irrigated agricultural land in both subareas has increased in recent years as more native vegetation is cleared for agricultural production, primarily the cultivation of strawberries. Most of the residential development has occurred since the mid-1950s.

Granite Ridge. The Granite Ridge subarea is an area of varying topography and supports a variety of land uses. This area includes the community of Prunedale. The majority of land in this subarea is designated for residential land uses and resource conservation. The subarea contains a relatively small amount of irrigated cropland; the majority of agricultural land is utilized for grazing and livestock. The low-density residential land use designation limits the minimum parcel sizes in this sub-area to 1 to 2.5-acre minimum. The Resource Conservation designation limits one unit on each parcel, with minimum parcel sizes of 10 to 160 acres. However, numerous small lots exist in the Resource Conservation area. The Prunedale area is currently subject to a B-8 restriction (no further subdivision of parcels).

Springfield Terrace. Land use in this subarea is mostly agricultural with the primary crops being truck crops such as vegetables and strawberries. Other agricultural land uses include vineyards and pasture land. Residential land uses consist of farmsteads, with a few rural subdivisions.

The following table shows the acreage of land uses in the five subareas:

Table 13. North County Land Use by Subarea (Acres)

Land Use	Pajaro	Highlands North	Highlands South	Granite Ridge	Springfield Terrace	TOTALS
Urban Residential	183	746	1,414	789	57	3,189
Suburban Res.	69	1,109	2,142	767	126	4,213
Rural Res.	1	196	514	74	35	820
Commercial	28	21	85	44	12	190
Industrial	52	0	5	8	0	65
Truck Crops	3,702	523	240	51	2,810	7,326
Berries	1,316	761	1,516	71	543	4,207
Field Crops	114	58	224	13	77	486
Flowers/Mush.	101	527	106	124	187	1045
Fruits/Nuts	297	138	6	20	7	468

Land Use	Pajaro	Highlands North	Highlands South	Granite Ridge	Springfield Terrace	TOTALS
Pasture	0	127	41	9	155	332
Vineyards	0	0	2	0	13	15
Grazing/Native	729	6,766	9,602	7,046	3,204	27,347
Other Ag.	206	69	102	40	114	531
Rec. Open Space	0	0	0	0	115	115
Cons. Open Space	0	2	58	2	457	519
Public Facilities	26	18	125	66	49	284
Utilities/Common	3	12	37	6	1	59
Uncoded	144	131	849	238	113	1475
TOTALS	6,971	11,204	17,068	9,368	8,075	**52,686**

Water Duty Factors. Water demand for agriculture was estimated by multiplying acreage of each land use in a subarea by a water duty factor. Residential use was calculated by multiplying dwelling units by a water duty factor. A water duty factor is an estimated volume of water used annually by a particular activity. It is measured in acre feet per year. Water duties are necessarily estimated averages. Water consumption varies in a number of regards. Over the course of the year, water use is high in the summer and low in the winter. For dwellings, use will vary from residence to residence, depending on number of persons in the dwelling and the intensity of outdoor landscaping.

Water duty factors for residential and commercial uses utilized were derived from water company records and studies of areas of similar climate. Agriculture water demand was estimated utilizing water duty factors which were verified from MW's agricultural water use model. The water duty factors derived from this model are considered superior to the average values commonly used because the model considers stage of growth and age of various crops. An important component of water use is return flow. This is the amount of water that returns to the ground water basin, either through septic systems or after use in irrigation. Different return flows were used in different areas depending on soils and type of water use.

Existing Demand

Existing demand discussed in this section is based upon the GIS model. The numbers generated are approximately ten percent higher than the IGSM. Some differences exist in the base data, the GIS utilizing information as recent as 1993. The GIS also does not account for agricultural areas that are not under production such as roads and staging areas. Because the GIS model was designed to be used for demand management, it tended toward the conservative. This is appropriate in water resource planning. Nevertheless, the ten percent difference is not material in this area given the fact that demand is currently more than 80% in excess of sustainable yield and will go much higher.

Residential. Currently, there are approximately 9,300[4] homes in the North County area. Most of these, over 6,000, are located in the Highlands North and South. Less than 1,500 homes are in the heavily cultivated areas of Pajaro and Springfield Terrace. Granite Ridge has over 1,400 homes. Most of the homes are on relatively large parcels (greater than 1 acre). This is a key component of the water demand. Larger parcels usually involve greater water using activities (gardens, pastures, etc.) and the water duty factors have been developed accordingly. Total residential demand is estimated to be 3,461 AF/Y.

Agriculture. Agriculture, at 85% of total demand (19,695 AF/Y), is the largest component of water used in the North County. Seventy percent of North County agricultural demand is in the Pajaro and Springfield Terrace subareas (7,979 and 5,370 AF/Y, respectively). The Granite Ridge subarea has strawberry fields in its northern lobe, but otherwise accounts for less than 400 AF/Y. The North and South Highlands subareas use approximately 3,000 AF/Y each for agriculture, most of which is in strawberries.

Table 14. Existing Water Demand (Net)

Summary - Current Demand (AF/Y)				
Subarea	**Agriculture**	**Residential**	**Other**	**Total**
Pajaro	7,979	303	32	8,315
Highlands North	3,190	818	9	4,016
Highlands South	2,700	1,547	36	4,283
Springfield Terrace	5,370	226	111	5,707
Granite Ridge	456	567	21	1,044
Totals:	**19,695**	**3,461**	**209**	**23,365**

Future Demand

Residential. Future residential water demand can be determined with reasonable accuracy by performing a build-out analysis. This analysis estimates the amount of additional development that could eventually take place in an area under current zoning regulations. Zoning

[4] Several data sources, but principally planning and assessor's, were used to establish the existing number of dwellings. A full discussion of this issue is contained in Appendix G.

is shown on Figure 20. This future development is added to the existing development. The total anticipated demand is called build-out.

Agriculture. The more difficult prediction is how much additional agricultural water demand will be created. The subareas of Pajaro and Springfield Terrace are nearly fully developed in terms of agriculture acreage and are not likely to experience an increase in water demand. Springfield Terrace will, however, require an alternative water supply as salinity levels increase and local supplies continue to degrade. Granite Ridge is generally not suitable or zoned for cultivation, therefore, little additional agricultural demand is anticipated. Also, little additional residential demand is anticipated. Highland North and South have the highest potential for additional agricultural water demand, due mostly to continued conversion of native land to irrigated acreage. Current zoning allows for conversion of native land to agricultural production. This represents a significant potential increase in water demand. The amount of the increase is a function of agricultural market forces and is difficult to predict.

Build-Out Analysis

Methodology. There are many methods for analyzing build-out. They range from "broad brush" approaches (e.g. gross land area divided by zoning density) to more precise methods (e.g. examining every parcel). For the North County study, the more precise, GIS parcel-based approach was taken. Rather than analyze build-out by the whole acreage of the land use categories, each parcel was analyzed for its development potential. The dwelling units on parcels that were already developed were tallied. Parcels that were undeveloped or partially developed (meaning they could legally support additional development) were examined. The number of potential, additional dwelling units was calculated for each parcel based upon its current zoning. This processis described in greater detail in Appendix G.

Assumptions. There are many variables used in a build-out analysis and they can change over time. For this study, the build-out analysis assumes that parcel size, current use, zoning regulation, and development constraints will remain unchanged and that study area parcels will be developed to their fullest structural potential pursuant to these criteria.

All land currently devoted to intensive agricultural activities (row crops, orchards, but not grazing or dry farming) is assumed to remain in those types of uses except for those lands that would be converted to residential/commercial use pursuant to zoning regulations and development potential.

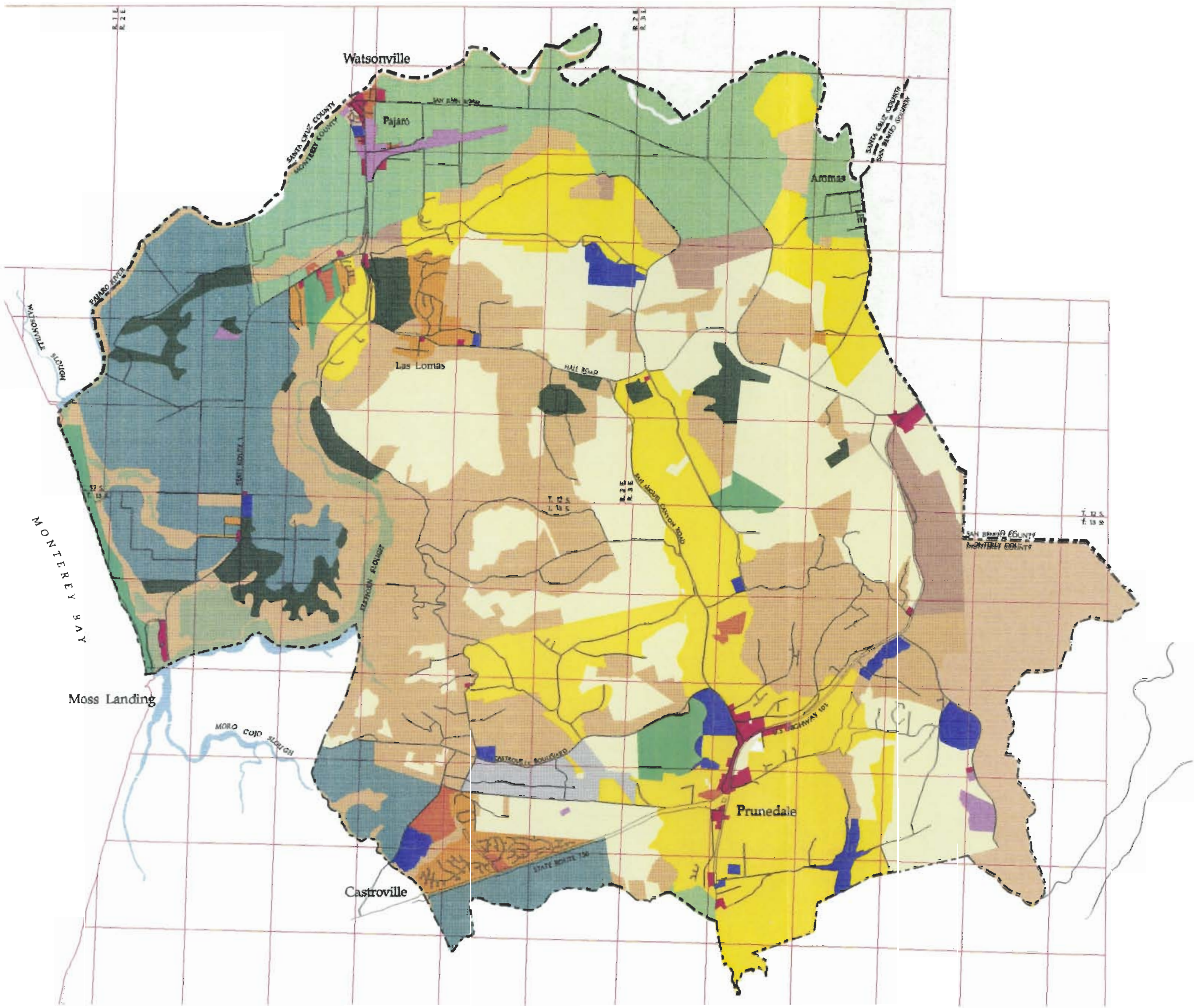


Figure 20

NORTH COUNTY ZONING

- High Density Residential
- Medium Density Residential
- Low Density Residential
- Rural Density Residential
- Commercial
- Industrial
- Outdoor Recreation
- Farmland
- Rural Grazing
- Permanent Grazing
- Coastal Ag Preserve
- Ag Conservation
- Resource Conservation
- Public/Quasi-Public
- Uncoded

MILES

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Source: Monterey County

North Monterey County Hydrogeologic Study

Residential. Table 15 - Build-Out Analysis of Dwelling Units (DU), compares the build-out scenario and current land use. The full tables for the build-out analysis are contained in Appendix G. Under current zoning, without agriculture conversion, it is estimated that an additional 2,200 houses could be built in the North County study area.

Table 15. Build-Out Analysis of Dwelling Units (DU)

	Pajaro	Highlands North	Highlands South	Springfield Terrace	Granite Ridge	TOTAL
Existing[a]	881	2,126	4,243	621	1,447	**9,319**
Potential[b]	112	661	937	114	376	**2,200**
Build-out	993	2,787	5,180	735	1,824	**11,519**

[a] Based on assessor's records and Planning Department data[1994]
[b] Based on current zoning (See Appendix G).

Agriculture. In order to develop a "build-out" for agriculture, it was necessary to develop a model on the GIS to analyze land suitable for cultivation. It was assumed that Pajaro and Springfield Terrace were cultivated to a level that will probably not be exceeded. Granite Ridge, except for the extreme northern portion, is not suitable for cultivation due to poor soils and lack of readily available water. The only areas assumed to be appropriate for significant additional cultivation are the Highlands North and South. The GIS model only analyzed these areas. The assumptions in the model were that areas likely for cultivation would be parcels larger than three acres, on slopes less than 30% and designated as open or grazing in the land use map. The model predicted that 2,566 additional acres could be cultivated for strawberries in Highlands North, and 5,217 acres in Highlands South. Nearly 8,000 acres of land could be cultivated, most likely as strawberries under current market trends (Figure 21).

Build-out Water Demand. The following table shows the estimate of demand for water that would occur at build-out for all land uses. The table combines land uses into agriculture, residential and other, for simplicity. The full build-out demand tables are contained in Appendix G.

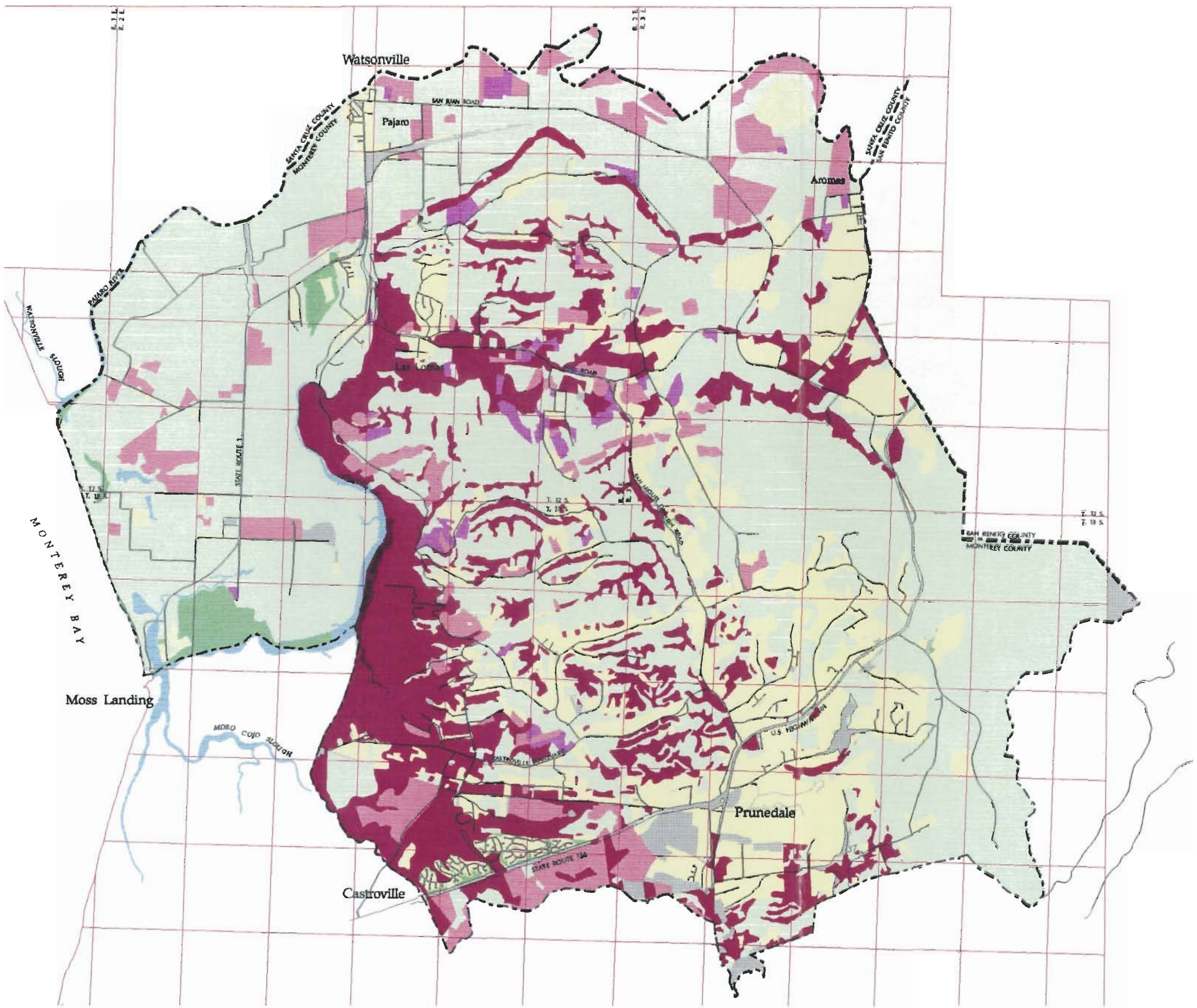

Figure 21

STRAWBERRY CULTIVATION POTENTIAL

- Potential Strawberry Area
- Existing Strawberries
- Existing Bushberries
- Other Agriculture
- Urbanized
- Designated Open Space
- Uncoded

ASSUMPTIONS:
1. Parcels less than 30% slope
2. Parcels larger than 3 acres
3. Designated open or grazing on land use map

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Sources: Monterey County, Bureau of Rec.

North Monterey County Hydrogeologic Study

Table 16. Build-Out Water Demand

Summary - Build-Out Demand (AF/Y)				
Subarea	**Agriculture**	**Residential**	**Other**	**Total**
Pajaro	7,979	415	32	8,427
Highlands North	5,756	1,479	9	7,243
Highlands South	7,917	2,484	36	10,437
Springfield Terrace	5,370	340	111	5,821
Granite Ridge	456	943	21	1,420
Totals:	**27,478**	**5,661**	**209**	**33,348**

Comparison of Supply and Demand

The estimates of supply and demand were compared to estimate the extent of current overdraft and estimated increase in overdraft at build-out. As discussed above, current water demand was calculated by both the GIS and the IGSM. In order to maintain consistency between various methods of analysis, the MW pumpage estimates were used as current demand allowing for integration of return flows from this demand in the calculation of the various components of supply and overdraft. The GIS was used to verify the MW pumpage estimates of current demand and to calculate the gross and net demand estimate for build-out. The net build-out demand was then compared to the natural recharge estimate derived from the model.

Current water demand in the study area is over 200 percent of supply. The overdraft for the study area is currently estimated at approximately 12,000 AF/Y compared to a supply of approximately 10,900 AF/Y. At build-out, overdraft is estimated to increase to as much as 22,200 AF/Y, with demand reaching approximately 300 percent of supply. The overall comparison of supply and demand is presented in Table 17.

Table 17. Summary of Annual Water Budget Estimates

Study, Date	Area (Acre)	Recharge (Acre-Feet)	Net Agricultural Extractions (Acre-Feet)	Net M & I Extractions (Acre-Feet)	Overdraft (Acre-Feet)	Overdraft/Acre (Acre-Feet/Acre)
DWR, 1977	53,700	8,055	21,200	1,800	15,000	0.28
USGS, 1983	59,300	20,508	32,800	3,500	15,500	0.26
Current Demand (GIS)	53,000	10,939	19,695	3,461	12,217	0.23
Build-out (GIS Model)	**53,000**	**10,939**	**27,478**	**5,661**	**22,200**	**0.41**

Although the overall results are similar, the estimates of supply and demand developed as part of this study differ from previous studies. These differences derive from the methodologies used. This study developed an estimate of supply that is higher than the value suggested by DWR and less than the value suggested by the USGS. The estimate of supply developed as part of this study is considered an improved value because it was developed utilizing the numerical ground water models allowing the integration of many hydrologic factors. This has resulted in the consideration of many spacial and temporal factors that were not considered in previous efforts. In particular the use of the numerical models allowed consideration of the variability of climatic factors that effect recharge and return flow. Variations in estimates in water demand are the result of changes in land use with continuing build-out since the time of the previous studies and the application of a more rigorous parcel-based analysis.

Although the entire study area is in overdraft, the magnitude of the imbalance varies from subarea to subarea. Comparison of the overdraft between subareas is, however, misleading. The subareas are hydrologically interdependent and comparison of supply between subareas is artificial. A portion of the supply for each of the subareas is derived from subsurface flow from adjacent subareas, the magnitude of the supply being a function of the gradient which is the result of pumping patterns within both the upgradient and downgradient subareas. Attempting to attribute subsurface flows to subarea of origin is complex and illustrates the interdependence of the subareas. For example, the sustainable yield for the Springfield Terrace subarea has been estimated at zero pumpage. This condition is the result of the storage depletion in this subarea which has resulted in seawater intrusion because of the subarea's proximity to the ocean. The storage depletion in this subarea is not the entirely the result of local pumpage. Storage depletion and falling water levels in the adjacent Highlands and Pajaro subareas has resulted in a reduction of the historical volume of subsurface flow into Springfield Terrace, compounding the effects of local pumpage. This interdependence between areas occurs throughout the study area. In addition, the study area is directly affected by water supply conditions within the adjacent Salinas and Pajaro Valleys which, although they are outside of the study area boundary are hydrogeologically connected.

Although comparison of a supply and demand water balance for a given subarea is misleading, the overall imbalance in the study area has created water supply problems that are manifest in each subarea differently. Because of its proximity to the ocean the Springfield Terrace is impacted by seawater intrusion, the result of storage depletion within the entire study area. The Granite Ridge area is impacted by localized falling water levels and storage depletion resulting from storage depletion in the adjacent Highlands and Salinas Valley which has increased the volume of subsurface flow from this subarea. The Highlands subareas are impacted by falling water levels resulting from both local pumpage and pumpage in the adjacent Salinas and Pajaro Valleys.

Nitrate Loading

General. As discussed earlier, the occurrence of high nitrate ion levels in ground water can be both an indicator of general water quality degradation and a health hazard in itself. High nitrate ion intake interferes with the bloods ability to adsorb oxygen molecules. It is especially dangerous to the elderly and infants. Nitrogen released into the ground water system from septic systems and from fertilizers oxidizes into nitrate ion. Both sources of nitrogen are present in the North County and high levels of nitrate ions have been documented.

Nitrogen Loading Assessment. Nitrogen loading assessment was performed by modifying the GIS water demand model. Land use and acreage data within the GIS were used with nitrogen loading rates to develop current and build-out loading for the study area and subareas.

Nitrogen loading rates utilized were developed by MW from previous studies and through calibration of the Pajaro Valley Ground Water Basin Model and were adjusted as necessary to consider soil and crop type and nutrient management practices. The loading rate is the mass of nitrogen per unit area estimated to pass below the root zone. The rate is specific for a particular land use and is typically estimated as an yearly average and expressed in pounds. The following table shows the loading rates used for this study. The rates shown are the amounts of nitrogen added to ground water after applied water percolates to the saturated zone.

Table 18. Total Annual Nitrate Loading

North County	Current	Loading Rates	Current	Potential		Build-Out
	DU/Acres	Pounds	Nitrate Load	DU/Acres	Nitrate Load	Nitrate Load
Urban Residential (<1 ac/du)	4,631 du	31.0	143,561	624 du	19,344	162,905
Suburban Residential (1-10 ac/du)	4,295 du	31.0	133,145	1,370 du	42,470	175,615
Rural Residential (>10 ac/du)	392 du	41.0	16,072	206 du	8,446	24,518
Commercial/Office	190	0.0	0			0
Industrial	65	0.0	0			0
Truck Crops	7,327	69.0	505,563			505,563
Berries	4,207	67.0	281,869	7,783	521,461	803,330
Field Crops	486	38.0	18,468			18,468
Flowers/Nursery/Mushrooms	1,045	83.0	86,735			86,735
Fruits/Nuts	468	21.0	9,828			9,828
Pasture	332	0.0	0			0
Vineyard	14	21.0	294			294
Grazing/Open	27,347	0.0	0			0
Other Agriculture	531	0.0	0			0
Recreation Open Space	115	0.0	0			0
Conservation Open Space	519	0.0	0			0
Public Facilities	284	0.0	0			0
Utilities/Common	58	0.0	0			0
TOTALS	--	--	**1,195,535**	--	**591,721**	**1,787,256**

Approach. Using the GIS, every parcel of land in the North County was assigned a loading. Table 18 - Total Annual Nitrate Loading, shows the intensity of loading averaged per acre under current development and cultivation conditions. The most striking difference between current loading and future will be areas anticipated to have additional strawberry cultivation. There was no attempt to estimate the current or future concentrations of nitrate ions in the ground water with the GIS. Estimation of nitrate ion concentration of percolating water is extremely difficult because it is dependent on localized land use, climatic conditions, nutrient management practices, irrigation efficiency, and localized hydrostratigraphy. Additionally, calibration of such estimates are essentially impossible due to localized variations in ground water flow and storage conditions. Calibration to existing wells is also not possible because, as discussed in the previous ground water quality section of this report, nitrate ion concentration at any given location is highly sensitive to well perforation depths, which vary greatly. The analysis also likely overstates nitrogen loading in some areas because some applied nitrogen is discharged to agricultural drainage systems and then to surface water bodies. In addition, the semiconfined nature of the Pajaro subarea likely restricts percolation. This is reflected in the absence of high nitrate concentrations in this subarea. The purpose of the nitrogen loading analysis was, therefore, to identify areas with high loading rates. It should be anticipated that these areas will have water quality problems in shallow wells.

Nitrate Balance - Current and Build-Out

Nitrate is chemically conservative; therefore, loading is cumulative. Each year additional nitrogen is applied and a portion of that is leached to the ground water. Build-out nitrate loading, in some areas, could be as high as 200 percent current loading due to increased strawberry production. Figure 22 - North County Nitrate Loading, shows relative concentrations of nitrate loading to the North County ground water. While the rate of increased nitrogen loading can be slowed, continued loading at today's rate will continue to significantly degrade water quality. The upper perched water aquifers and the populations that have historically relied on them, are currently the most affected with a high percentage of shallow wells already exceeding the state and federal nitrate limits. In the interim, the abandonment of contaminated wells and the installation of deeper wells is currently a successful method to obtain potable water. Given the current and future nitrate loadings, the larger regional aquifers are projected to eventually become contaminated. In that event, water treatment for potable water supplies will be needed. This latter eventuality, as with the case with supply augmentation, is made very difficult by a variety of constraints including: the lack of an area-wide water distribution system, limited finances available to affected users, legal constraints, and disposal of treatment unit wastewater.

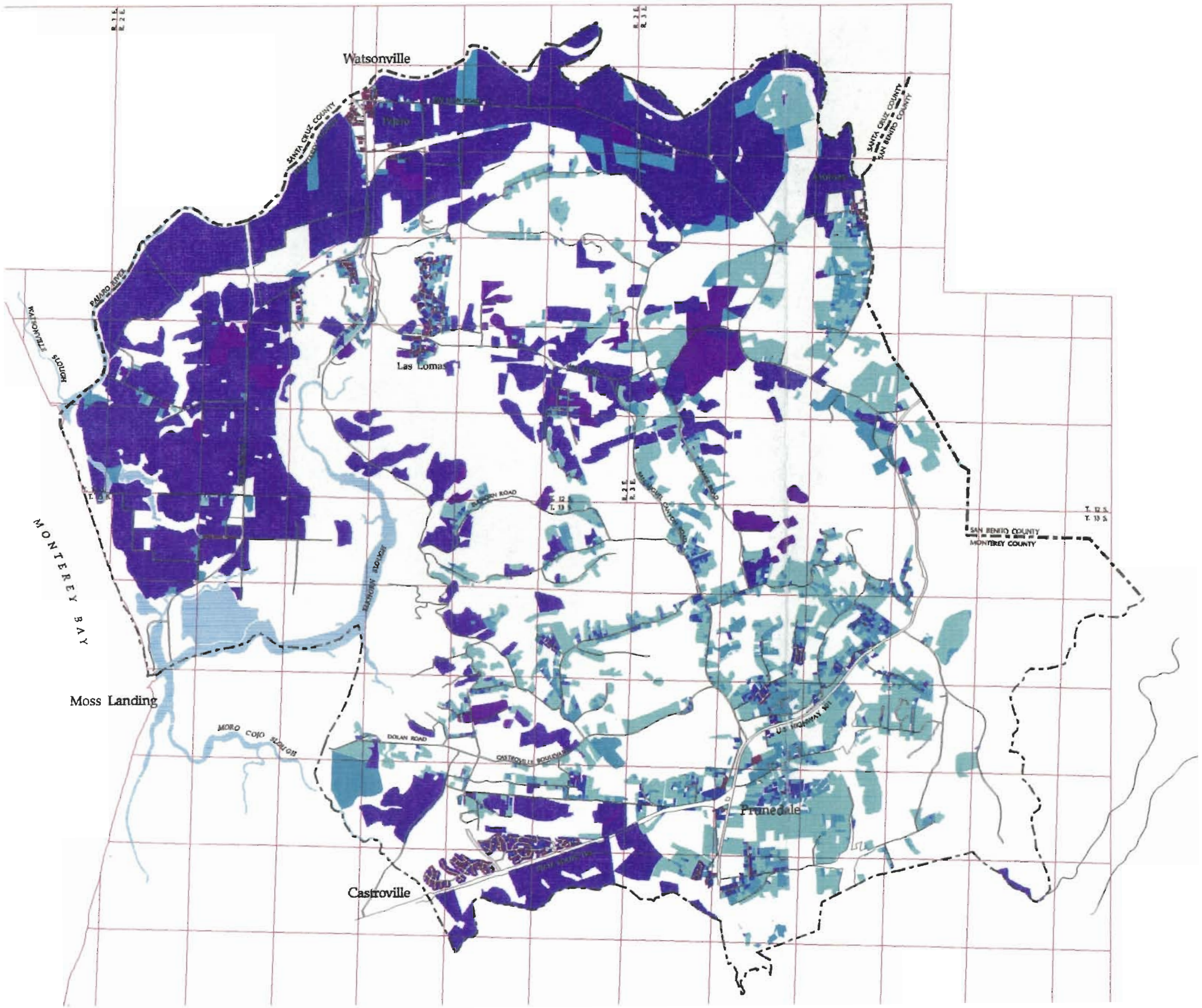

Figure 22

NORTH COUNTY NITRATE LOADING

Current Conditions

- 0 lbs/acre/year
- > 0 and <= 20 lbs/acre/year
- > 20 and <= 40 lbs/acre/year
- > 40 and <= 60 lbs/acre/year
- > 60 and <= 80 lbs/acre/year
- > 80 and <= 100 lbs/acre/year
- > 100 lbs/acre/year

Sources: Monterey County, Bureau of Rec.
Montgomery Watson
North Monterey County Hydrogeologic Study

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CONCLUSIONS

1.0 GENERAL STATEMENT

The North County study area has extremely varied and complex hydrogeology. The area has significant water supply and water quality problems including falling water levels, seawater intrusion and nitrate ion contamination. North County problems not only affect residents and agriculture in the area, they also affect water supply and quality conditions in the adjacent and hydraulically connected Salinas and Pajaro Valleys. Previous reports have documented the study area to have been in a state of chronic overdraft since the 1950's. This finding is confirmed by this report. Based on the analysis of available data, the study area is believed to be severely overdrafted, with annual ground water extractions exceeding average annual recharge by more than 100 percent.[5] At build-out, under existing land use plans, water demand could increase to 300 percent of sustainable yield or more. Under current demand conditions the ratio of agricultural/non-agricultural demand is approximately 85 to 15 percent. At build-out, this ratio is expected to remain similiar (82 to 17), although most of the future potential water demand will be from additional agriculture.

The chronic overdraft of the has area resulted in falling water levels and the degradation of ground water by seawater. Excessive nitrogen loading has rendered ground water nonpotable in many areas. Supplemental water supplies for the area have been recommended since the 1950's. However, the delivery of water to the area has always been judged to be too expensive. At the present time, with the possible exception of PVWMA proposed water importation project and Salinas River Basin Management Project (BMP) water, imported supply is likely not available. If imported water would become available, delivery of this water would be difficult. Because of the number and dispersed nature of the agricultural users and small water systems, delivery of imported water would require construction of an expensive distribution system to deliver the water. Without a supplemental supply and distribution system, water supply problems in the area will need to addressed by demand management.

2.0 HYDROGEOLOGY

2.1 Hydrogeologic Setting

The hydrogeology of the study area is quite varied and complex. The area is bounded to the north and south by the alluvial basins of the Salinas and Pajaro Rivers. Between these alluvial basins, the area is comprised of a complex system of sediments aggregated under the designation of the Aromas Sands which overlie older Tertiary rocks and onlap to the east onto exposed

[5] Compare this with an 8% overdraft in the Salinas Valley, an area with 50 times the sustainable yield of North County.

granitic basement. Available data suggest that the delineation of three primary aquifer systems; the alluvial deposits associated with the river systems, the sediments which comprise the Aromas Sand, and the weathered and fractured granite. These aquifer systems are not distinct and grade and interfinger into each other. To date, the available data from the underlying Tertiary deposits including the Purisima Formation have not been demonstrated to be viable aquifers in the study area. Considering that the source of recharge to the Purisima Formation in the study area is leakage from the overlying Aromas Sand or alluvial deposits, water supply development from this aquifer, should it prove feasible, cannot be considered an additional source.

2.2 Hydrogeologic Subareas

As a result of the study area's size and complexity, several previous studies have divided the area into smaller regions or subareas. The basis for these subareas has included geographic, political, hydrologic and hydrogeologic factors. The previous subarea schemes were evaluated and found to be inadequate for purpose of managing ground water resources in the area. Four new subareas were developed based primarily on hydrogeologic factors including: the nature of occurrence of ground water, availability of ground water, sources of recharge and water quality issues. One of the four subareas was further divided to reflect the jurisdictional boundary between the MCWRA and the PVWMA. The suggested subareas were presented to the project advisory committee and adopted in early May 1995. The subareas, while displaying distinctive differences, are hydraulically connected with each other and the adjacent Pajaro and Salinas Valley areas. Because of this connection between these areas, ground water conditions with the subareas and connected areas are interdependent. The subareas as adopted are:

1) Pajaro Subarea. This subarea includes the area within the alluvial basin of the Pajaro River south of the Santa Cruz County line and west of the San Benito County line. Although the Pajaro subarea is part of the overdrafted Pajaro Valley Ground Water Basin, ground water is readily available to all but the most coastal of pumpers within the Pajaro subarea. Coastal pumpers are restricted due to intruding seawater within the aquifer system.

2) Springfield Terrace This subarea encompasses the area of Springfield Terrace, the area north and west of Elkhorn Slough and south of the Pajaro subarea. The subarea is bounded by the Pacific Ocean to the west and as the result of below sea level water levels has significant seawater intrusion problems.

3) and 4) Highlands, North and South These two subareas are hydrogeologically similar and have been arbitrarily divided by the PVWMA boundary. The area encompasses the elevated area between the Pajaro and Salinas Valleys. The primary aquifer system in the area is the Aromas Sand. The area is bounded on the west by Springfield Terrace and the east by the portions of the study area dominated granitic hydrogeology. Ground water is readily available within this subarea, although the aggregate pumping is contributing to chronic storage depletion.

Storage depletion is resulting in falling water levels and seawater intrusion. The ground water within the area is tributary to the Pajaro Valley to north and the Salinas Valley to the south.

5) **Granite Ridge** The granite ridge area is the eastern portion of the study area where the ground water resources occur either within the weathered or fractured granite. The western boundary of the area is defined those area with less than 100 feet of saturated unconsolidated materials above regional bedrock surface. The boundary of the area roughly corresponds with the existing Prunedale B-8 area. Ground water availability in this subarea is variable reflecting the bedrock aquifer. Well yields are variable and generally low. Due to the limited amount of ground water in storage, the area is extremely sensitive to drought conditions.

2.3 Water Levels

Historical water level data shows a general trend of declining water levels throughout the study area. Area-wide water levels decline has averaged approximately 0.5 feet per year for the last 20 years. In general, ground water levels are below sea level in most of the study area west of the Granite Ridge subarea. Several significant pumping troughs exist in the area. One is in the Pajaro Valley, centered just south of the community of Pajaro. Another is centered in the Las Lomas area and displays seasonal water levels as low as 25 feet below sea level. Another is centered along the slough with water levels averaging approximately 20 feet below sea level. Another pumping trough is located in the Prunedale area (south of intersection of Highways. 101 and 156) and displays water levels averaging 40 feet below sea level. Comparison of the historical location of the "zero elevation" water level in the study area shows a steady easterly migration of this line as the area is progressively dewatered and water levels retreat toward the granite ridge area. This chronic storage depletion is resulting in the regional occurrence of falling water levels and localized seawater intrusion/infiltration.

2.4 Monitoring Wells

Two monitoring wells clusters were constructed as part of the study. The wells were constructed to provide additional hydrogeologic data and to supplement the Agency's study well network. Locations for well clusters were selected after review of the existing data and through discussions with Agency staff. Monitoring well clusters were constructed in the Dolan/Elkhorn Road and Las Lomas areas.

The Dolan/Elkhorn Road location was selected to provide additional water quality data relating to the nature of seawater degradation in this area and to provide additional hydrostratigraphic data. Data from this monitoring well cluster displayed elevated chloride ions only in the shallow portion of the aquifer system at this location. These and other data suggest that the source of seawater degradation in this area is the result of vertical leakage of saline water from Elkhorn Slough rather than horizontal movement of seawater from offshore outcrop of the aquifer system. Lithologic data from this monitoring well cluster also confirmed the basis for the previous designation of a upper and lower Aromas Sand in this localized area. However, review of the lithologic data from the remaining portion of the study area suggests that this designation can only be supported in this portion of the study area.

The monitoring well cluster in the Las Lomas area was drilled to provide for an early warning of encroaching seawater intrusion into this area from Springfield Terrace area. This location was selected because pumping in the Las Lomas area has created a significant pumping trough with water levels seasonally below elevations of -25 feet MSL. The proximity (less than 1.5 mile) of a localized pumping trough of this magnitude to mapped seawater intrusion (greater 500 mg/l chloride ions) raises concerns regarding the long-term reliability of the water supply for this community. Data from the monitoring well revealed no evidence of seawater degradation in either the shallow or deep monitoring well.

The monitoring wells should be added to the Agency's network of dedicated monitoring wells. Water level data from these wells should be collected on a minimum of a bi-monthly basis and water quality data on a quarterly basis.

3.0 WATER QUALITY

Ground water quality in the study area is generally good to excellent. However, ground water quality is locally impacted by elevated concentrations of nitrate and chloride ions. Elevated nitrate ion concentrations are the result of both agriculture practices and domestic wastewater disposal in the study area. Elevated chloride ions are the result of the degradation of the ground water from sources of seawater.

3.1 Seawater Intrusion

Currently, there is evidence of the degradation of the ground water by seawater in the Springfield Terrace and Elkhorn areas of the study area. In the Springfield Terrace area seawater intrusion has advanced at least as far as Highway 1 (approximately 1 mile inland) and additional data suggest that intrusion may have advanced across the Highway. Available data strongly suggest that the elevated chloride ion occurs predominately within a discrete zone of the aquifer at an elevation of approximately -120 to -150 feet MSL. This occurrence of the chloride ion degradation at this discrete depth supports the mechanism of degradation as the horizontal movement of seawater from the coastal outcrop. The volume of seawater intrusion was quantified as part of the ground water modeling effort at an average annual value of approximately 750 AF/Y over the last 22 years.

Available data suggest that the elevated chloride ions in the ground water in the areas adjacent to the Elkhorn Slough are the result of vertical leakage from this water body. Water quality data from the Elkhorn Slough reveal Elkhorn Slough to contain water of similar chemical character and concentration as seawater the majority of the year. Analysis of ground water quality data from this area suggests the occurrence of elevated chloride ion concentrations in the ground water at elevations just below sea level, suggesting a surface source. Additionally, records from several wells located immediately adjacent to Elkhorn Slough show a significant and sudden increase in chloride ion concentration after 1983 when Elkhorn Slough levees were abandoned.

Conceptual analysis of the hydraulics of Elkhorn Slough/ground water system suggest that under current conditions Elkhorn Slough is estimated to be leaking approximately 3,000 to 5,000 AF/Y of seawater into the ground water system. This analysis is consistent with the ground water modeling of the study area which quantifies the average recharge from Elkhorn Slough at approximately 3,660 AF/Y (2,570 AF/Y within model domain; 1,090 AF/Y as boundary inflow).

Comparison of the various components of seawater degradation of the ground water system in the study area reveals seawater intrusion (horizontal movement of seawater through an aquifer) to contribute approximately 20 percent of the total, the remaining portion being the result of vertical leakage from Elkhorn Slough.

The migration of seawater into the aquifer system, regardless of mechanism, requires pressures in the aquifer system to be less than sea level thereby creating a gradient favorable for movement into the aquifer system. If water levels were above sea level, both infiltration from Elkhorn Slough and intrusion from the subsea outcrops would diminish.

Given current land use and resulting water demands, mitigation for various seawater degradation mechanisms are limited. The mitigation of seawater intrusion in the Springfield area will require the cessation of the majority of pumping in this area. This would require land fallowing/retirement or the development and delivery of an alternative source of water. Service to the Springfield Terrace area is included in the PVWMA Basin Management Plan which will include the possible construction of a pipeline and the importation of water to the PVWMA area from outside the area. Short-term solutions in the Springfield area are limited to the construction of deeper wells and wells at more inland locations.

Mitigation of degradation resulting from leakage from Elkhorn Slough could also be achieved by restricting pumpage and allowing water levels to recover. Again, given existing land use and water demands, this is considered unlikely. As the current water quality conditions within Elkhorn Slough are the result of man-made alterations to this system, consideration could be given to the alteration of Elkhorn Slough operations that would prevent seawater from migrating as far inland within the Elkhorn Slough system. Currently, Elkhorn Slough water is typically the concentration of seawater as far inland as Los Carneros Creek and seawater fills the various fingers of the Elkhorn Slough system along Dolan and Russo Roads. Alterations to Elkhorn Slough hydrology could take the form of additional tide gates or other flow control measures.

The re-establishment of brackish to fresh water conditions within Elkhorn Slough and associated fingers would have significant beneficial impact on the ground water system. In the absence of modification of Elkhorn Slough operations, the quality of the shallow ground water near Elkhorn Slough will continue to degrade. Short-term mitigation measures in this area would included construction of wells with perforations below elevations of -100 feet MSL to assure adequate dilution of percolating water from Elkhorn Slough with native ground water. A management program for Elkhorn Slough should be integrated in the proposed Phase II scope of work for the North County Ground Water Management Plan.

3.2 Nitrate Ion Contamination

Ground water in the study area is locally impacted by elevated concentrations of nitrate ions. The occurrence of elevated values have impacted many small water systems requiring the construction of replacement wells to meet water quality standards.

Concentrations vary greatly with many wells displaying very low concentrations while other wells in the area have displayed concentrations as high as 399 mg/l (as NO^3)[6]. The variations between subareas is somewhat reflective of the hydrogeology and land use. Nitrate ions concentrations are generally higher in the Springfield and Highlands subareas. These areas have intensive agricultural activities and unconfined to semi-confined aquifer conditions.

Nitrate contamination in the study area is derived from either excess agricultural nutrients or septic systems. These surface-applied sources leach into the ground water system with excess irrigation water, percolating rainfall, and septic system return flow. These components of recharge eventually reach the water table mixing with the shallowest ground water. This mechanism results in a good correlation between the relationship between the nitrate ion concentration and the depth below the water table. Shallow wells consistently display higher concentrations of nitrates than do nearby wells that are deeper.

Analysis of the data from the study area reveals that, with minor exceptions, nitrate ions concentrations do not exceed drinking water standards in wells with perforations placed at least 125 feet below static water level. These data affirm the common practice and recommendation of constructing a deeper well to mitigate elevated nitrate ions concentrations. This analysis should assist with quantifying the recommended depth.

The demonstrated relationship between perforation depth and nitrate ion concentration makes the analysis and correlation of areal distribution of nitrate ion concentration data meaningless. Alternatively, this study has used the GIS to model nitrate loading rates to provide a tool that would delineate areas where problems will be worse and deeper wells will be necessitated.

[6] Drinking water standard for NO_3 is 45 mg/l.

4.0 WATER BUDGET

Water budget analysis for the study area was performed utilizing both a numerical ground water model and a GIS based demand model. The various components of the water budget for the study area for this report were estimated through the combined use of the Pajaro and Salinas Valley ground water basin models developed by Montgomery Watson. Through use of a linkage routine, the two models, which join in the center of the study area, were used to run simultaneous simulations to quantify the various components of the water budget for the simulation period of 1970 through 1992. After calibration, the models were used to develop water budgets for the study area.

Water demand in the area was estimated utilizing the ground water models and the GIS parcel-based demand model. Current water demand was estimated utilizing the ground water models and was verified with the GIS model (using different methodologies, the two approaches produced demand results within 10% of each other). Future demand was estimated utilizing the GIS model which allows for greater flexibility in analysis of alternative build-out scenarios.

4.1 Water Supply

The modeling effort resulted in an estimated sustainable yield of 14,480 AF/Y for the study area. This value represents the amount of water that can be pumped without causing additional ground water declines from 1992 conditions and/or not causing additional seawater intrusion.

Alternatively, total annual average fresh water recharge (does not include inflow from adjacent areas) from all sources to the study area was estimated 11,050 AF/Y. Of this value, the major components are approximately 6,800 AF/Y from infiltration of rainfall and an additional 4,250 AF/Y of recharge from the Pajaro River. The two estimates differ only in that the sustainable yield estimate reflects the consideration of recharge from the infiltration of pumped water, either as agricultural or septic system return flows.

4.2 Current and Future Water Demand

Agricultural activities account for approximately 85% of the water demand in North County. Low density residences use 14%. A small amount of commercial activities in the area accounts for the balance of water demand.

Future water use in the North County will see a similar percentage of agricultural water demand. Under current zoning, an estimated 2,200 more houses could be built in the North County, a 23% increase. The estimates for new agriculture are market driven and based upon recent trends. The subareas of Springfield Terrace, Pajaro and Granite ridge will not sustain much additional cultivation. The Highlands North and South will likely see considerable additional cultivation of strawberries. Nearly 8,000 acres of land have the potential for conversion to cultivation in the Highlands North and South. Volume II of this report examines several possible future scenarios for additional water demand, accounting for differing management options available to the County. Total net demand could increase to 33,348 AF/Y if current development and cultivation practices were left to continue.

4.3 Overdraft

Overdraft in the area is currently estimated at approximately 8,550 AF/Y. This includes an annual storage depletion of 5,230 AF and the additional loss of 4,410 (3,660 + 750) AF/Y of aquifer storage due to seawater inflow of various types. Current overdraft is over 200 percent of the estimated supply. This estimate of overdraft compares with previous estimates of approximately 15,000 AF/Y suggested by the USGS and DWR. The lower estimate resulting from this study is the result of the use of the numerical ground water model which allowed better accounting of the various components of recharge. At build-out under current land use plans, overdraft is estimated to increase to as much as approximately 22,200 AF/Y.

4.4 Seawater Intrusion

Continued overdraft in the study are will increase seawater intrusion in the coastal areas and near the Slough. As discussed above, seawater inflow was quantified at 4,410 AF/Y as part of the water budget for the study area. This inflow replaces depleted storage in primarily the Springfield Terrace subarea and in the vicinity of the Slough. As water levels are maintained at increasing lower elevations below sea level, seawater intrudes at an increasing rate, reducing fresh water storage capacity and, as discussed, above impacting water quality.

4.5 Subarea Water Supply and Accessibility

Sustainable yield estimates were developed for each of the subareas. All of the subareas with the exception of the Granite Ridge subarea will require substantial reductions in extractions to achieve sustainable yield. Granite Ridge area is estimated to be at sustainable yield. To maintain sustainable yield no expansion of pumpage can occur in the Granite Ridge subarea.

Although discrete sustainable yield estimates have been developed, water supply conditions in the subareas are interdependent. This interdependence is reflected in the sustainable yield estimates developed. The sustainable yield estimates assume that each of the subareas can be operated at the recommended yield. If extractions from a subarea exceed the recommended sustainable yield value, the sustainable yield for the adjacent subarea is accordingly reduced. For example, extractions in the Granite Ridge subarea are currently estimated to be approximately at sustainable yield. However, water levels in this subarea are declining due to outflow to the adjacent areas in which extraction substantially exceed the sustainable yield estimates. Because of this interdependence, it is difficult to establish firm supply numbers for the subareas. It is recommended that planning analysis and land use modification not be predicated on subarea budgets.

The interdependence of the subareas not withstanding, significant differences in the hydrogeology, current conditions, water availability and nature of demand exist between the subareas which merit consideration of demand management strategies. The generalized conditions are summarized in the following sections.

4.5.1 Pajaro

Hydrogeology: Alluvial basin overlying Aromas Sand
Primarily recharged by Pajaro River

Current Conditions: Water levels below sea level
Seawater intrusion and localized elevated nitrate ion concentrations

Water Budget:

Pumpage:	9,030	AF/Y
Sustainable Yield:	6,490	AF/Y
Required Reduction:	2,540	AF/Y

Water Supply Accessibility:
Generally good. Well yields are high, where not impacted by salt water intrusion, water quality is good. Storage is high, overdraft supported by storage depletion.

Nature of Demand: Pajaro is an area of flat, prime soils, most of which is under cultivation. Some urbanization exists south of Watsonville. There should not be considerable increase in demand unless there is extensive conversion of agriculture to high density residential development.

4.5.2 Springfield Terrace

Hydrogeology:	Terrace Deposits overlying Aromas Sand Minimal Natural Recharge
Current Conditions:	Water levels below sea level Significant seawater intrusion and infiltration Widespread elevated nitrate ion concentrations

Water Budget:

Pumpage:	6,670 AF/Y
Sustainable Yield:	0 AF/Y
Seawater Intrusion:	750 AF/Y
Seawater Infiltration:	2,570 AF/Y
Required Reduction:	6,670 AF/Y

Water Supply Accessibility:

Generally good. Well yields are relatively high. Where not impacted by salt water intrusion, water quality is good. Storage is high with overdraft supported by storage depletion and seawater intrusion.

Nature of Demand: Almost exclusively agricultural (exception is small area near golf course). Water use is severely restricted by increasing seawater intrusion and infiltration and nitrate contamination. Highly constrained for residential development (i.e. hard demand).

4.5.3 Highlands North and South

Hydrogeology:	Aromas Sand on Purisima Formation
Current Conditions:	Recharged entirely by precipitation Water levels generally below sea level Localized sea water intrusion/infiltration and elevated nitrate ion concentrations in shallow wells.

Water Budget:

Pumpage:	9,800 AF/Y
Sustainable Yield:	7,310 AF/Y
Seawater Infiltration:	1,090 AF/Y
Required Reduction:	2,490 AF/Y

Water Supply Accessibility:

Generally good. Well yields are fair to good. Storage is high, overdraft supported by storage depletion. There are localized areas of high nitrate ion concentrations, assumed to be due to perched systems.

Nature of Demand: Mixed low density residential and strawberries. 90% of residential development has occurred since 1950 and probably most in the last 15 years. Strawberry development is more recent. Unlike areas with perceptible problems (Granite Ridge with low yield wells and Springfield Terrace with salinity), the Highlands perceives no severe water problem (except where locally impacted by water quality). Water is abundant and of good quality. However, current demand and future development will continue to mine the resource.

4.5.4 Granite Ridge

Hydrogeology: Veneer of sediments on granite grading to exposed granite
Ground water in weathered or fractured granite
Recharged entirely by precipitation

Current Conditions: Water levels above sea level
Localized elevated nitrate ion concentrations in shallow wells

Water Budget:

Pumpage:	610 AF/Y
Sustainable Yield:	610 AF/Y
Required Reduction:	0 AF/Y

Water Supply Accessibility:

Generally poor. Well yields are low and extremely variable. The low storage capability creates significant susceptibility to supply problems during drought conditions.

Nature of Demand: Almost exclusively low density residential. No or little viable cultivation. Supply is low yield, not suitable for development of community systems.

4.6 Nitrogen Loading

Nitrogen loading is both a cumulative impact on existing uses and a constraint on build-out in the study area. Agricultural application of fertilizers and septic systems will continue to load the vadose zone and ultimately the ground water basin with nitrate ions. Concentrations of nitrates will be highest at the top of the water table, necessitating deeper wells for those properties impacted. Most of the nitrogen load to the area is from agricultural fertilizer. Nitrogen loading is currently approximately 655,000 pounds per year and could double at build-out due to extensive additional strawberry cultivation.

5.0 GENERAL RECOMMENDATIONS

Water demand far exceeds supply in the North County study area and as a result the area is in a state of chronic overdraft; a condition that has been documented since the 1950's. Bringing the area into balance will require either the reduction of demand or the augmentation of supply. Water supply options for the North County area are limited. Possible sources of additional supply for the area include proposed importation projects from either, or both the Pajaro and Salinas Valleys. The proposed importation project from the Pajaro Valley would deliver water from outside the County through a pipeline. As proposed, this project would bring an alternative supply of water to the Pajaro and Springfield subareas. The Salinas River BMP project previously proposed to deliver water to the North County area. Currently, the BMP concept does not contain provisions to deliver water to North County. However, the BMP could be modified to include the delivery of water to the North County area. Delivery of water by either project to the study area will require the construction of a distribution infrastructure. Neither of these projects, if authorized, will be completed in the near future. In the interim, water supply problems in North County will need to be addressed through demand management. Although the subarea delineation is somewhat misleading hydrogeologically, the subareas do merit different demand management approaches. For this reason, the subareas are maintained.

Volume II of this report contains alternatives for the management of the North County water supply and demand. It also contains a detailed discussion of policy issues and legal and institutional constraints which arise in the consideration of ground water management schemes. Volume II also contains an interim plan to manage demand in furtherance of the development of a comprehensive ground water management plan.

6.0 CLOSURE

This report has been prepared for the exclusive use of the MCWRA for specific application to the North County area of Monterey County. The findings and conclusions presented herein were prepared in accordance with generally accepted hydrogeologic engineering and planning practices. No other warranty, express or implied, is made.

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APPENDIX A
HYDROGEOLOGIC EXPLORATION PROGRAM

Subsurface Exploration and Monitoring Well Construction

Subsurface exploration and monitoring well construction operations commenced on November 17, 1994, and continued through December 7, 1994. Based on review of the available data, locations for monitoring well clusters that would assist in filling data gaps regarding aquifer delineation, water quality, and water level data were submitted to the Agency for approval. The original Scope of Work included the drilling and completion of three monitoring well clusters, each consisting of an approximate 400- and 200-foot completion in separate boreholes, for a total drilling footage of 1,800 feet. However, after reviewing available water level, water quality, and hydrostratigraphic data, it was apparent that the project would be better served by drilling deeper at two locations, utilizing the extra footage intended for the third cluster. The scope was then modified to consist of the drilling of two clusters, each consisting of an approximate 600- and 300-foot completion. The deeper completions allow better delineation of the vertical extent of fresh water-bearing materials and further the understanding of the hydrogeologic relationships between the study area and the ground water basins to the north and south. Two sites were recommended: one between the Springfield Terrace and Las Lomas areas in the northwestern portion of the study area; and another near the intersection of Castroville Boulevard with Elkhorn Road in the southern portion of the study area.

The recommended site in the Las Lomas area was at the end of Hudson Landing Road within the County right-of-way. This site was selected based on the following criteria:

- Recent water quality data collected in the Springfield Terrace area have suggested expansion of the seawater intrusion migrating inland from the coast.

- Recent water level measurements in the Las Lomas area (August 1994) indicate static water surface elevations 25 feet *below* mean sea level, creating a significant landward gradient and a potential mechanism for seawater intrusion. The monitoring wells allow for collection of additional water level data in the area between Springfield Terrace and Las Lomas to determine the actual gradient.

- A dedicated monitoring well cluster at this location serves as an "early warning" detection site for advancing seawater intrusion toward the Cal-Water Service Company's water supply wells for the community of Las Lomas.

- To confirm and/or delineate the thickness of fresh water-bearing deposits at this location.

The second recommended site was in the County right-of-way near the intersection of Castroville Boulevard with Elkhorn Road. This location was selected for the following reasons:

- Water level data collected in the area provide evidence for the possible existence of two aquifer systems. A monitoring well cluster at this location would serve to confirm reported water levels.

- Limited lithologic data collected in the area suggest the possible existence of an upper and lower Aromas Formation. Drilling at this location provided needed additional lithologic data to identify and/or delineate the existence of discrete units corresponding to an upper and lower Aromas Formation.

- To confirm/delineate the thickness of fresh water-bearing materials at this location.

Limited water quality data collected in the area suggest possible seawater/brackish water infiltration in wells near Elkhorn Slough. The monitoring well cluster at this location served to confirm/delineate the presence of seawater/brackish water at this location.

Well permits from the County of Monterey Environmental Health Services and encroachment permits from the County of Monterey Public Works Department were acquired for each of the sites.

Drilling equipment consisted of a truck-mounted direct-rotary drill rig (Mayhew 1000), a 3,000-gallon water/pipe truck, and a portable mud tank equipped with a shaker screen and a desanding cone. Drilling fluids were circulated through a 400 gpm centrifugal pump. The drilling fluid consisted of high grade bentonite. Make-up water used during the drilling at the Hudson Landing Road site was obtained from a Cal-Water hydrant located in the town of Las Lomas. Water for the Dolan Road site was obtained from a City of Castroville hydrant.

The work performed at each site began with the drilling of a test boring. The test boring at the Hudson Landing Road site was drilled to a total depth of 700 feet. The test boring at the Dolan Road site was drilled to a total depth of 600 feet. During the drilling process, drilling activity was monitored and a lithologic log was prepared by a Fugro geologist. Cuttings samples were collected at 10-foot intervals. Upon reaching the final depth, a geophysical log was performed. The geophysical log included measurements of spontaneous potential (SP), resistivity (long- and short-normal, and single point), and natural gamma-ray. The geophysical and lithologic logs, as well as the cuttings samples, were reviewed by Fugro staff, and the completion schedules for the wells were determined. The lithologic log for each site is attached. The geophysical log was transmitted to the Agency under separate cover.

Two separate perforated zones were desirable at each site to determine the degree of hydraulic continuity between aquifer zones that appear to be distinct on the geophysical log. Following completion of each deep boring, a second shallow monitoring well was drilled and completed at each site. At Hudson Landing Road, the shallow boring was drilled to a depth of 145 feet. At the Dolan Road site, the initial deep boring was completed as the shallow monitoring well due to difficulty in advancing the casing to a depth greater than 275 feet. Therefore, a cement seal was placed between the depths of 315 and 360 feet, with the well completed to a depth 205. Subsequently, a second boring was drilled and completed as the deep monitoring well.

Each monitoring well consists of 2-inch-diameter Schedule 40 PVC, joined together using belled ends or slip couplers, solvent cement, and screws. The screened section(s) of each well are perforated with horizontal 0.040-inch machine-cut slots. Each well was provided with a 5-foot-long cellar, which was included as part of the well design to facilitate air development of the screened interval. The upper 5 feet of each well casing consists of 4-inch-diameter Schedule 40 PVC, designed to accommodate instrumentation for collection of water level data. Each well was gravel packed with three-eighths-inch minus, "River Run" pea-gravel provided by the Granite Rock Company of Salinas, California. An annular surface seal was provided in each of the completed borings. Surface seals consisted of "Volclay" grout placed through a tremie pipe from the top of each gravel pack to the surface. Each monitoring well was developed through air lifting following well construction and, prior to the termination of the air lifting, a sample was collected from each well for water quality analysis by the Agency. A drawing depicting the lithology and monitoring well construction characteristics of each well are included in this appendix. Well construction details are summarized on the table entitled *North County Monitoring Well Summary*.

North Monterey County Hydrogeologic Study - Well Log

Well Ident	Description
12S/02E-28G02	HUDSON LANDING ROAD DEEP MW

Drill Method	DIRECT ROTARY	Drill Date	11/17/94

X	1194650.00	Y	567650.00	Z	15.00	SWL	-6.50

Scales	
Vertical	Horizontal
3750.0	15.0

Depth [feet]	Hole	Annulus	Casing	Screen		Lithology	Elev. [feet]

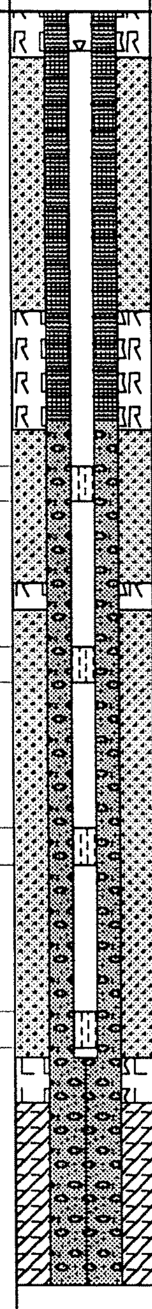
Depth [feet]: 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700

Hole: 6.25; 700

Annulus: CEMENT SEAL; 225; GRAVEL PACK; 700

Casing: 2; 575

Screen: 250, 270; 350, 370; 450, 470; 550, 570



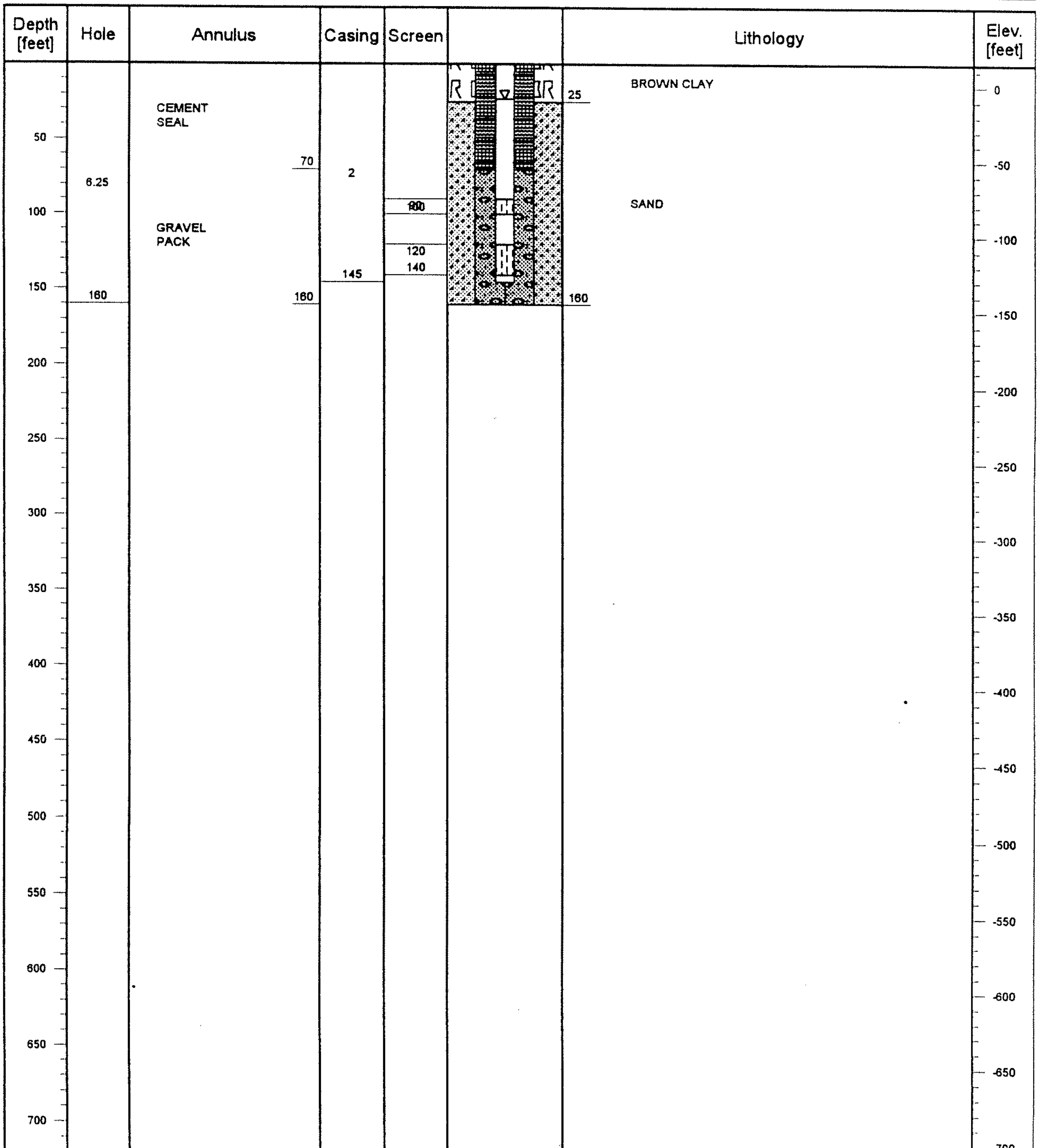
Lithology:
25 BROWN CLAY
165 SAND
230 BROWN CLAY
315 SAND
330 BROWN CLAY
575 SAND
600 BLUE CLAY
700 PURISIMA

Elev. [feet]: 0, -50, -100, -150, -200, -250, -300, -350, -400, -450, -500, -550, -600, -650, -700

North Monterey County Hydrogeologic Study - Well Log

Well Ident	12S/02E-28G03
Description	HUDSON LANDING ROAD SHALLOW MW
Drill Method	DIRECT ROTARY
Drill Date	11/19/94
X	1194642.00
Y	567650.00
Z	15.00
SWL	-8.25

Scales	
Vertical	Horizontal
3750.0	15.0



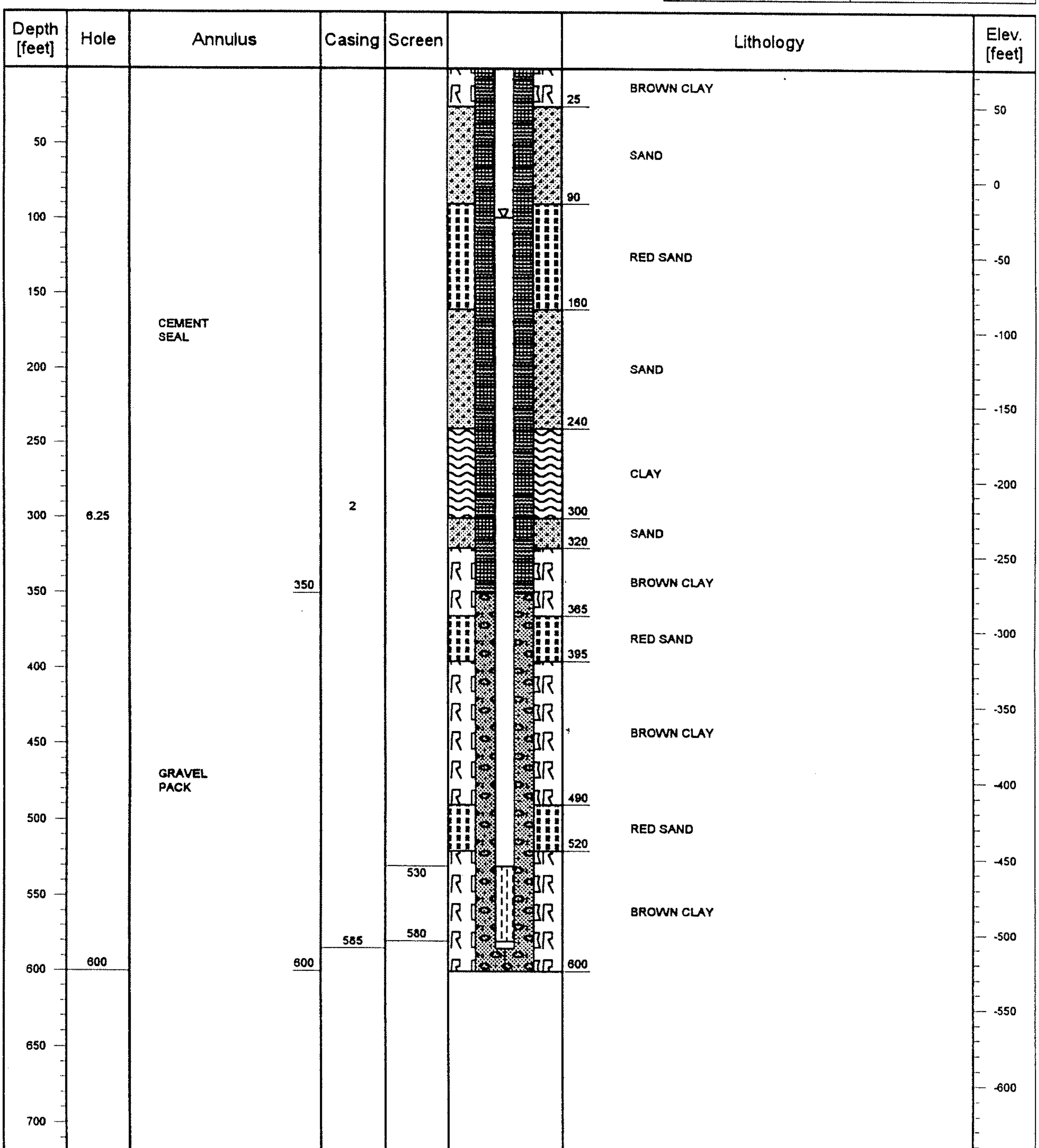
North Monterey County Hydrogeologic Study - Well Log

Well Ident	Description
13S/02E-15R02	DOLAN ROAD DEEP MW

Drill Method	DIRECT ROTARY	Drill Date	12/4/94

X	5762959.00	Y	2184856.00	Z	75.00	SWL	-23.85

Scales	
Vertical	Horizontal
3750.0	15.0



North Monterey County Hydrogeologic Study - Well Log

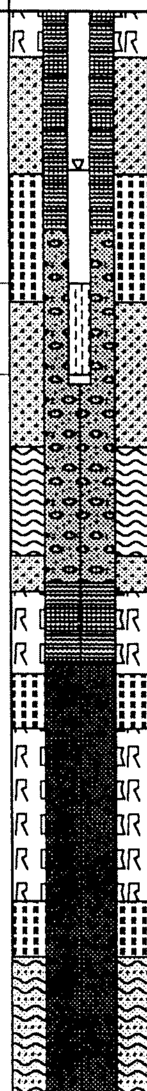
Well Ident	Description
13S/02E-15R03	DOLAN ROAD SHALLOW MW

Drill Method		Drill Date	
DIRECT ROTARY		11/30/94	

X	Y	Z	SWL
5762967.00	2184856.00	75.00	-12.55

Scales	
Vertical	Horizontal
3750.0	15.0

Depth [feet]	Hole	Annulus	Casing	Screen	Lithology	Elev. [feet]
	6.25 (to 600)	CEMENT SEAL (to 120)	2 (to 150)	150–200	BROWN CLAY (to 25)	
		GRAVEL PACK (120–315)			SAND (25–90)	
		CEMENT SEAL (315–360)			RED SAND (90–160)	
		PUDDLED MUD (360–600)	205		SAND (160–240)	
					CLAY (240–300)	
					SAND (300–320)	
					BROWN CLAY (320–365)	
					RED SAND (365–395)	
					BROWN CLAY (395–490)	
					RED SAND (490–520)	
					INTERBEDDED CLAY AND SAND (520–600)	



Depth scale: 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700

Elevation scale: 50, 0, -50, -100, -150, -200, -250, -300, -350, -400, -450, -500, -550, -600

North County Monitoring Well Summary

	Hudson Landing Road		Dolan Road	
	Deep	Shallow	Deep	Shallow
Well Number	12S/02E-28G02	12S/02E-28G03	13S/02E-15R02	13S/02E-15R03
Location	Attached		Attached	
E-log	Attached		Attached	
~ Elevation (ft)	15	15	90	90
Total Depth	575'	145'	585'	205'
Screen Intervals	250'-270'	90'-100'	530'-580'	150'-200'
	350'-370'	120-140'		
	450'-470'			
	550'-570'			
Cellar	570'-575'	140'-145'	580'-585'	200'-205'
Seal Depth	225'	70'	350'	120'/315'-360'
Gravel Pack	220'-700'	70'-160'	350'-600'	120-315'
Water Level (12/7/94)	21.5	23.25		
Water Level (12/19/94)			98.85	87.55
~ Water Elevation (ft)	-6.5	-8.25	-8.85	2.45
Water Quality (umhos/cm)	743	587	480	745
chloride (mg/l)	56	24	54	158

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REPORT OF FIELD OBSERVATIONS

FUGRO McClelland

Job No.:	Date: 11-17-94 M T W ~~T~~ F S S
Client: MCWRA	Project: NORTH COUNTY HYDRO. INVESTIGAT.
Location: WEST END HUDSON LANDING RD	Weather: COOL / RAINING
Observer: DBE	Observation Period: Start: 7:00 Stop: 15:30

Description: DRILL & LOG TWO MONITORING WELLS TO ~ 600 & 200', RESPECT.

7:00 ARRIVE @ FUGRO MTY / LEAVE FOR SITE

7:50 ARRIVE ON SITE, MEET WITH DRILLERS & SET UP TO DRILL

8:30 SPUD IN AND BEGIN LOGGING

9:00 - 9:20 REPAIR DAMAGED SUMP PUMP

13:45 BOTTOM OUT @ 600', CIRCULATE

14:15 TRIP OUT OF HOLE AND SECURE SITE

15:30 LEAVE SITE, DRILLER LEAVES FOR BAKERSFIELD TO OBTAIN 100' FEET OF ADDN'L DRILL PIPE

NOTE: PAGE SECURITY WILL PROVIDE NIGHT WATCH SERVICES BEGINNING AT 6:00 PM

Mileage: ______ miles

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REPORT OF FIELD OBSERVATIONS

FUGRO McClelland

Job No.:	Date: 11/18/94 M T W T ~~F~~ S S
Client: MCWRA	Project: NORTH CO. HYDRO. INVESTIGATION
Location: WEST END OF HUDSON LANDING RD	Weather: CLEARING & COOL
Observer: DBE	Observation Period: Start: 7:30 Stop:

Description: DRILL 100' AND ELOG FIRST MONITORING WELL

7:30 ARRIVE @ FUGRO MONTEREY, PREPARE FOR DRILLING

7:45 DRILLER CALLS ESTIMATING ARRIVAL TIME FOR 7:45, CALL CRAIG WITH WELLENCO AND PREDICT ~12:00 ELOG TIME

8:15 LEAVE FOR SITE

8:50 ARRIVE ON SITE & MEET WITH DRILLER AND BEGIN ADD'L DRILLING FROM 600' TO 700' IN FIRST MW., TRIP IN WITH DRILL STRING

11:15 BEGIN DRILLING FROM 600'

11:35 DOWN FOR SUMP PUMP REPAIR & FILL WATER TRUCK

12:45 RESUME DRILLING

13:30 WELLENCO (CRAIG) ARRIVES TO PREPARE FOR ELOGGING

14:15 TRIP OUT AND BEGIN ELOGGING
NOTE: ELOG BOTTOMS OUT WITH GAMMA AT 599'

15:00 DRILLERS PERFORM SWEEPER RUN TO CLEAN OUT HOLE FOR (SP/RES) STANDARD LOG 15:30 LEAVE SITE

Mileage: ______ miles

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REPORT OF FIELD OBSERVATIONS

FUGRO McClelland

Job No.:	Date: 11-19-94 M T W T F ~~S~~ S
Client: MCWRA	Project: No. County Hydro. Investigation
Location: West Hudson Landing Rd	Weather: Cool / Clear
Observer: DBE	Observation Period: Start: 7:15 Stop:

Description: Complete both shallow & deep monitoring wells

7:15 Leave for site

7:45 Arrive on site / Drillers running wiper run for casing installation, set up pipe for installation

NOTE: Completion schedule based on Elog

	Deep	Shallow
Total depth	700'	160'
Seal depth	220'	70'
Gravel pack	220'-640'	70-160'
Bottom of well	575'	145'
Blank	0-250'	0-90'
Screen	250-270'	90'-100'
Blank	270-350'	100'-120'
Sceen	350'-370'	120'-140'
Blank	370'-450'	140-145' (cellar)
Screen	450'-470'	
Blank	470'-550'	
Sceen	550-570'	
Blank	570-575' (cellar)	

14:00-15:30 Drill and install shallow well

15:30-17:30 Clean up & leave site (18:30 drillers lv. site)

Mileage: ______ miles

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REPORT OF FIELD OBSERVATIONS

FUGRO McClelland

Job No.:	Date: 11-20-94 M T W T F S ~~S~~
Client: MCWRA	Project: No. COUNTY HYDRO. INVESTIGATION
Location: WEST END HUDSON LANDING RD	Weather: COOL / CLEAR
Observer: DBE	Observation Period: Start: 7:00 Stop:

Description: DEVELOP & SAMPLE BOTH MONITORING WELLS

7:00 P/U MATERIALS FROM SHED AND LEAVE FOR SITE

8:00 ARRIVE ON SITE & UNLOAD EQUIPMENT FOR DEVELOPMENT

9:15 DRILLERS ARRIVE ON SITE, SET UP RIG OVER DEEP WELL, MAKE CROSS OVER TO DEVELOP SHALLOW WELL SIMULTANIOUSLY

10:30 UNIVERSAL JOINT FAILS ON RIG / R&R TILL 11:15

12:00 ROBERT MARKS ARRIVES TO TAKE OVER OBSERVATION

12:30 - 13:30 INVESTIGATE NEXT DRILL SITE @ DOLAN & CASTROVILLE BLVD => RETURN TO MTY

Mileage: ______ miles

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REPORT OF FIELD OBSERVATIONS

FUGRO

Job No.: 94-71-0160		Date: 11/29	M ~~T~~ W T F S S
Client: MCWRA		Project: North County M.W.'s	
Location: Dolan Rd		Weather: clear	
Observer: R. Marks		Observation Period: Start: 7^{45} Stop: 17^{20}	

Description: on-site 7^{45} Rick Rodfeiro Drilling on-site & (Dean) Backhoe operator preparing site for Drilling
9^{00} Joe from Moss Landing Marine Lab stopped by site. Informed me that slope just above site is a restoration project. I said we would avoid disturbing any planted shrubs & restore the site as much as possible when finished Drilling.
Dan Erbes on-site.
10^{30} Mo Co. Public Works stopped by site. Expressed concerns Regarding the trench/pit causing slope stability problems. Informed Them we would only be here 1 week & will Restore site. They said everything should be O.K.
11^{10} M.C.P.W. (Vic Lewis) stops by Again & Tells us we'll have to relocate the site due to the Landslide problem. He indicates some lack of communication @ P. Works between him & the Inspector has allowed us to proceed this far. Permission should never have been granted for this site. Call M. Feeney - he will call USA for new site
12^{35} Pac Bell on-site → clears new site → P.B above ground.
13^{30} Begin digging pit @ new site - pull up Phone line
Call Martin Feeney - he calls PB.
14^{10} PB on-site - checks uncovered line → concludes it is abandoned.
14^{35} Continue preparing new site. D. Erbes leaves site.

Mileage: ______ miles 16^{30} Dean Leaves Site. 17^{20} I Leave Site. RM

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REPORT OF FIELD OBSERVATIONS

FUGRO

Job No.:	Date: 11/30/94 M T ~~W~~ T F S S
Client: MCWRA	Project: NORTH COUNTY
Location: DOLAN & RUSSO RD	Weather: COOL / CLEAR
Observer: DAN ERBES	Observation Period: Start: 7:00 Stop:

Description: DRILL & INSTALL TWO MONITORING POINTS

7:00 LEAVE FOR SITE

7:30 ARRIVE ON SITE & MEET WITH DRILLERS

8:00 SPUD IN

9:20 REPAIR SUMP PUMP

9:40 REPAIR CLOGGED MUD PUMP, RESUME 9:50

10:00 CALL OFFICE TO MOBILIZE E LOG EQUIP FROM BAKERSFIELD

* ↓ 12:10 RIG DOWN FOR REPAIRS

15:05 RESUME DRILLING

15:50 to 16:30 TRIP OUT FOR ROCK BIT

18:15 TRIP OUT FOR ELOG

17:00 → 20:00 ELOG COMPLETE DRILLERS LEAVE SITE

20:40 LEAVE SITE & ARRIVE @ FUGRO MTY @ 21:15

Mileage: 50 miles

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REPORT OF FIELD OBSERVATIONS

FUGRO McClelland

Job No.: 94-71-0160	Date: 12-1-94 M T W ~~T~~ F S S
Client: MCWRA	Project: NORTH COUNTY HYDRO INVEST.
Location: DOLAN & RUSSO RD	Weather: COOL / CLEAR
Observer: DAN ERBES	Observation Period: Start: 7:00 Stop:

Description: INSTALL DEEP MONITORING WELL AT NW CORNER OF DOLAN & RUSSO

7:00 LEAVE FOR SITE

7:30 ARRIVE ON SITE & MEET WITH DRILLERS

7:40 → 9:00 TRIP IN AND OUT (SWEEPER RUN)

9:30 → BEGIN INSTALLATION OF CASING; COMPLETION SCHEDULE

BLANK 4" 0 - 5'

BLANK 2" 5 - 530'

SCREEN 2" 530-580'

BLANK 2" 580-585'

10:15 CASING MEETS REFUSAL @ 275', CLAY SWELL CAUSES BRIDGE

10:15 → 1030 PULL CASING

10:30 TRIP IN AND OUT W/ SWEEPER RUN

NOTE: POLYMER ADDED TO MUD TO REDUCE RISK OF ADDITIONAL SWELLING

12:30 CALL OFFICE, SUGGEST INSTALLING PLUG @ 250-350 AND COMPLETE SHALLOW WELL ABOVE PLUG AND REFILL DEEP HOLE

12:50 - 13:50 SECURE SITE AND RETURN TO FUGRO MONTEREY

Mileage: ______ miles

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REPORT OF FIELD OBSERVATIONS

FUGRO

Job No.: 94-71-0160		Date: 12/3	M T W T F ~~S~~ S
Client: MCWRA		Project: North County - MW's	
Location: Dolan & Russo Rds		Weather: overcast / Rain	
Observer: R. Mundy		Observation Period: Start: 9^{30} Stop: 15^{30}	

Description: On-site 9^{30}. Begin to prepare casing.

10^{00} contractor (Rick, Sheldon, & Rick JR.) on-site

10^{40} Tag cement seal @ ~ 313'. Call M. Feeney Regarding adequacy & placement of seal. He Indicates it should be plenty → call Dean Boyston to deliver 3 to 4 tons Gravel.

11^{00} Circulate out from 250'

11^{30} Run Casing 0-150 Blank, 150-200 Screen, 5' cellar

11^{50} Begin Gravel Packing -

12^{45} Tag Gravel @ ~ 120' - used ~ 4 Tons → Have Dean Go pick up 5 more Tons for the Deep well (10 Tons total).

13^{00} Begin Pumping Seal from 105' (Tremie location)

13^{20} Top off Seal Volclay visable @ Surface. 2 lifts (5 sacks/100 gal) (~27 ft^3)

14^{00} Rick Pulls forward ~10' & sets up to Drill 600' hole tomorrow.

14^{50} Sheldon leaves to get more water.

15^{30} Leave Site

Mileage: ________ miles

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REPORT OF FIELD OBSERVATIONS

FUGRO McClelland

Job No.: 94-71-0160	Date: 12-4-94	M T W T F S ~~S~~	
Client: MCWRA	Project: NORTH CO HYDRO STUDY		
Location: RUSSO & DOLAN ROAD	Weather: COLD / WET		
Observer: DAN ERBES	Observation Period:	Start: 7:00	Stop:

Description: DRILL AND INSTALL DEEP (535') MONITORING WELL @ DOLAN & RUSSO RD'S

7:00 LEAVE FOR SITE

7:30 ARRIVE ON SITE, BEGIN DRILLING

10:00 AVG 160' PER HOUR DOWN T 440'

12:00 COMPLETE DRILLING TO 600' AND PULL OUT UP TO 200 FEET AND COMMENCE TO SWEEP

12:30 BOTTOM OUT & CIRCULATE

14:00 PULL OUT & INSTALL CASING, COMPLETION SCHEDULE AS FOLLOWS

0 - 5' 4" PVC BLANK

5 - 530' 2" PVC BLANK

530 - 580 2" PVC SCREEN

580 - 585 2" PVC BLANK (CELLAR)

NOTE 8 DEAN (MUDSLINGER BACKHOE SERVICE) ON SITE W/ 5 TONS 3/8" RIVER RUN GRAVEL @ 12:45 LOAD DUMPED @ 14:30, HE LEAVES SITE

15:30 TAG TOP OF GRAVEL @ 350'

16:30 WATER TRUCK RUN & SET UP TO PUMP SEAL

Mileage: ______ miles

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REPORT OF FIELD OBSERVATIONS

FUGRO

Job No.:	94-71-0160	Date:	12/5 ~~M~~ T W T F S S
Client:	MCWRA	Project:	North County
Location:	Dolan & Russo Rds	Weather:	Partly Cloudy
Observer:	R Munkes.	Observation Period:	Start: 7^{50} Stop: 16^{00}

Description: On Site 7^{50}. Contractor already on-site - has Tagged Seal @ ~40'. Mix 1 lift of Volclay

8^{05} Ask Worker in Field if o.k. to Allow Development water on Field - it is

8^{15} Top off Seal. Volclay Grout visable @ the surface

9^{30} Begin Airlifting from ~420'

10^{40} Install 6 Joints - Resume Airlifting from 546'

Q Muddy Initially - then Clears up by 11^{10}.

11^{10} Allow well to Recover

11^{20} Resume Airlifting from ~570' - Q muddy the cloudy

12^{45} Begin Airlifting Shallow well. Q muddy Initially

13^{40} Rick Goes to Dump.

15^{00} Rick Back on-site.

16^{00} Dan Erbes on-site. Instruct him in Sampling Procedures. I Leave Site.

R Munkes

Mileage: ______ miles

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REPORT OF FIELD OBSERVATIONS

FUGRO McClelland

Job No.: 94-71-0160	Date: 12/7/94 M T W(X) T F S S
Client: MCWRA	Project: NORTH COUNTY
Location: DOLAN ROAD / HUDSON LANDING	Weather: COOL / CLEAR
Observer: DBE	Observation Period: Start: Stop:

Description: RECORD WATER LEVELS & PLACE TRAFFIC ENCLOSURES

10:00 LEAVE FOR OSH / PICK UP SUPPLIES

12:00 DROP DOLAN ROAD WATER SAMPLES OFF @ COUNTY

12:30 ARRIVE @ HUDSON LANDING & INSTALL WELL BOXES

HUDSON LANDING (WATER LEVELS) DEEP 21.5'

SHALLOW 23.25

15:30 ARRIVE @ DOLAN ROAD & RECORD WATER LEV.

DOLAN ROAD DEEP 151.8 − 1.3' = 150.5 -60

SHALLOW 139.6' − 1.5 = 138.1 -48

NOTE: DOLAN ROAD SITE IS TOO MUDDY TO RESTORE DUE TO TUESDAY RAIN, WILL ATTEMPT TO RESTORE ON MONDAY AS WEATHER CALLS FOR CLEAR / WINDY CONDITIONS FOR WEEKEND

16:00 SECURE & LEAVE SITE

16:45 ARRIVE @ FUGRO MTY

Mileage: ______ miles

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FUGRO WEST, INC.
201 HOFFMAN AVENUE, SUITE 14
MONTEREY, CALIFORNIA 93940

DRILLING LOG

CLIENT: MCWRA
WELL: Hudson Landing Rd. | No.:
COUNTY: Monterey | STATE: CA
TOWNSHIP: / | RANGE: | SECTION:
LOCATION: End of Hudson Landing Rd. on South Side
ELEVATION: | TOTAL DEPTH: 700
SPUD DATE: 11/17/94 | FINAL DATE:
DRILLING COMPANY: Redfeairn Drilling
PUSHER: Rick Redfeairn

GEOLOGIST: Dan Erbes
LOGGING PERSONNEL: Dan Erbes
SERVICES PERFORMED: Lithologic Logging and Contractor Supervision
DATE BEGUN: 11/17/94 | DATE RELEASED:
INTERVAL LOGGED: | FOOTAGE:
REMARKS:

HOLE SIZE

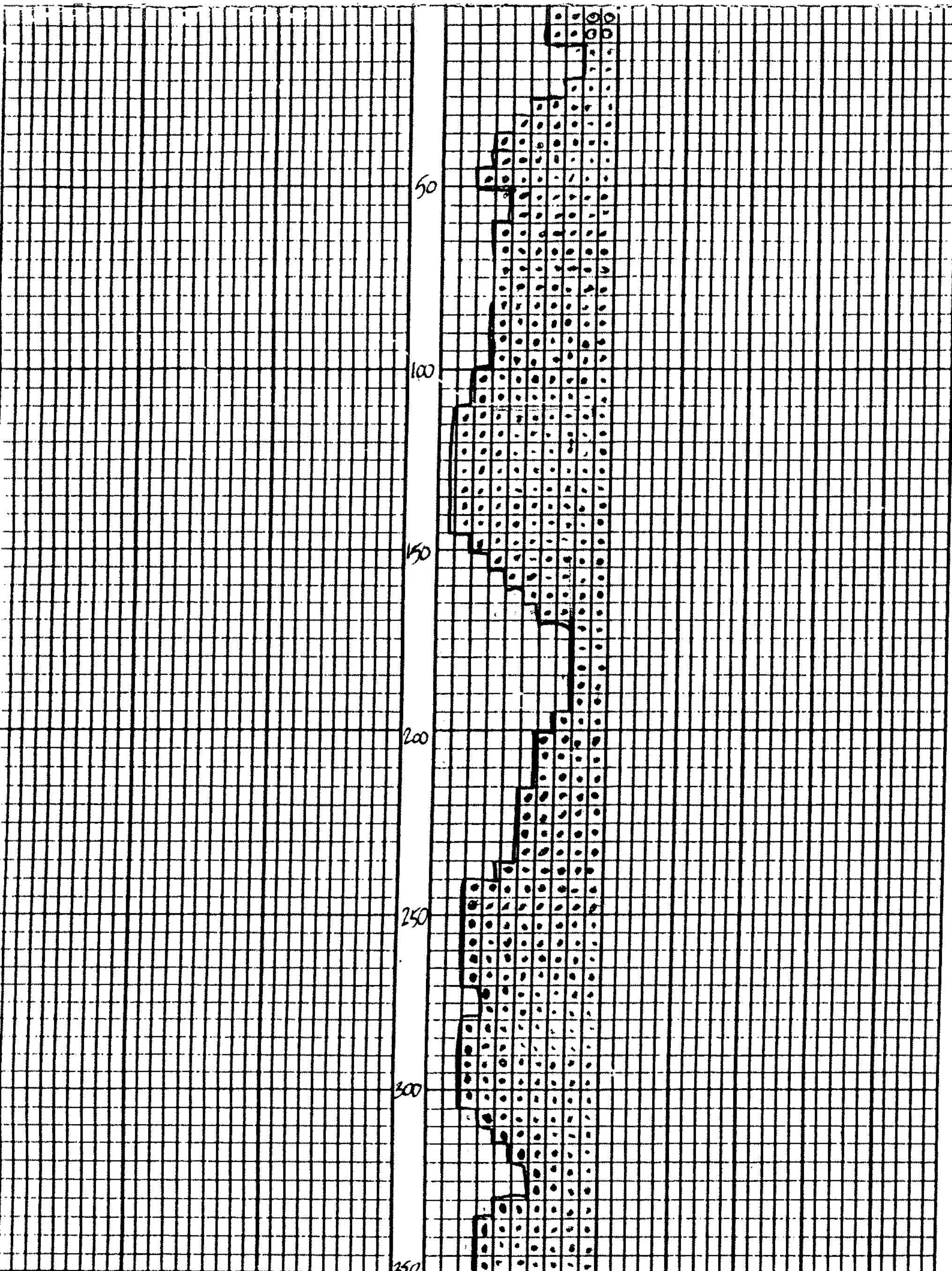
CASING RECORD

ABBREVIATIONS

CO	CIRCULATE OUT	PR	POOR RETURNS
LAT	LOGGED AFTER TRIP	SC	SAND CONTENT (%)
NB	NEW BIT	VIS	VISCOSITY (SECONDS)
NCB	NEW CORE BIT	WL	WATER LOSS (CC/30 MIN)
NR	NO RETURN	WT	FLUID WEIGHT (LBS/CU.FT.)

CLAY | SILT | SAND | GRAVEL

DRILLING RATE (FT/HR)	LITHOLOGY: SAND CONCENTRATION (100 50 0)	VIS POR: POOR FAIR GOOD	GRAIN-SIZE DISTRIBUTION (Value x 10 = %): COARSE MEDIUM FINE VERY FINE	RIG ACTIVITY MUD ADDITIONS AND PROPERTIES	DESCRIPTION AND REMARKS



9:20

9:35

ADD 2 BAGS OF QUICK GEL

ADD ± 3 BAGS QUICK GEL

CLAY – FILL WITH COARSE SAND/GRAVEL AND DEBRIS

CLAY – MOTTLED ORANGE BROWN WITH SAND

CLAY – A/A, DARK GREY [illegible]

SAND – BROWN, FELDSPATHIC W/CLAY INTERBEDS, FINE TO COARSE [illegible]

– A/A GREY BROWN, NO CLAY V.F. TO [illegible] SAND SLIGHTLY INDURATED, NO CLAY

SAND – [illegible] STICKY W/ FINE TO COARSE SAND, GREY BROWN CLAY INTERBEDS

[illegible] A/A, ORANGE BROWN

SAND – A/A W/FEWER INTERBEDS, W/ORGANICS

[illegible] A/A

[illegible] WITH CLAY STREAKS

SAND – A/A FINE TO COARSE SAND

CLAY – LIGHT BROWN

CLAY – BLUE WITH LIGHT BROWN CLAY

CLAY – A/A WITH SANDY [illegible] BEDS

CLAY – SANDY [illegible]

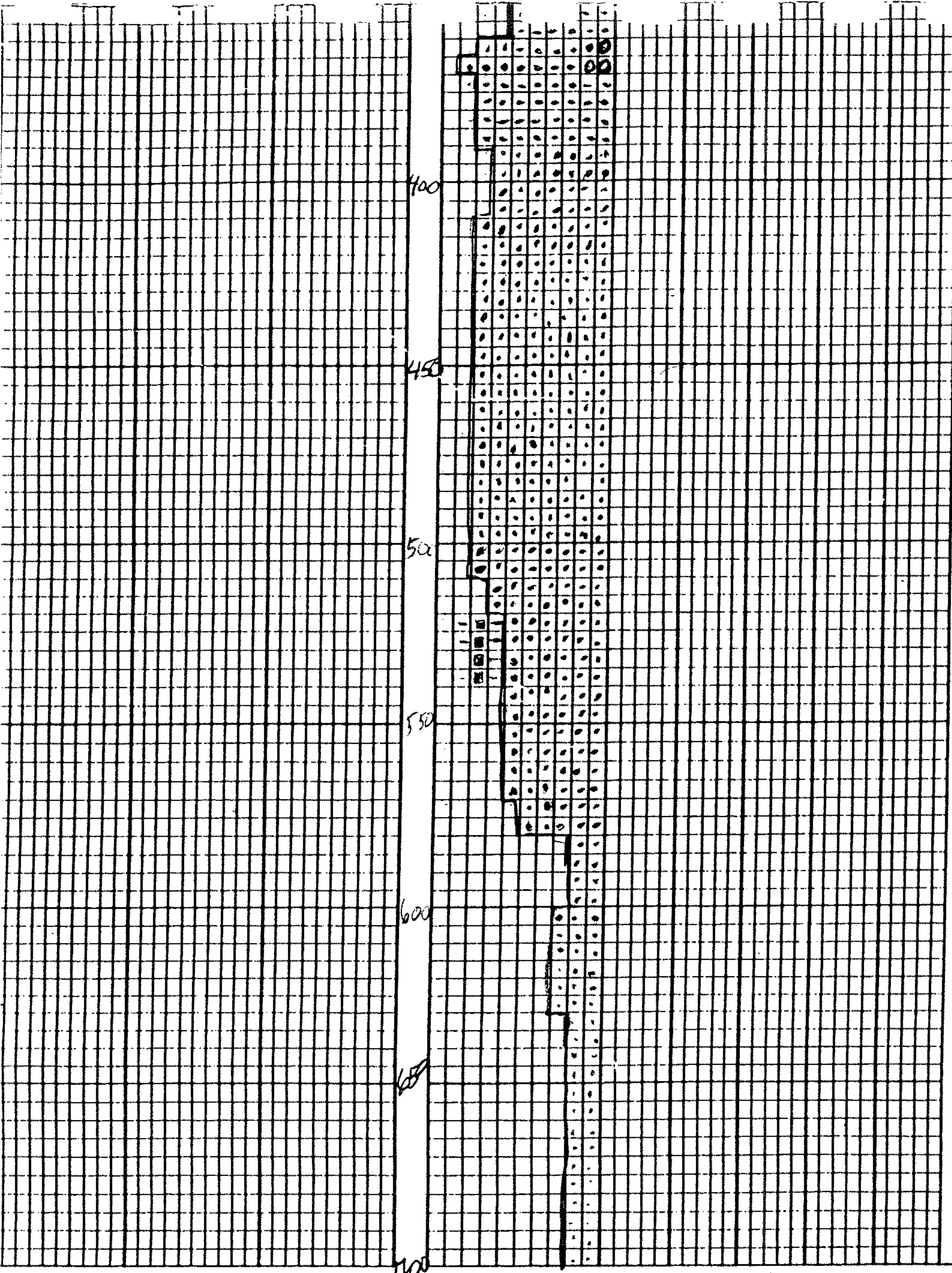
CLAY – A/A

SAND – ORANGE BROWN FELDSPATHIC FINE TO COARSE

SAND – A/A

CLAY – LIGHT BROWN, SANDY

SAND – ORANGE BROWN FELDSPATHIC FINE TO COARSE



ADD ~3 BAGS
QUICK GEL

12:45

ADD 3 BAGS
QUICK GEL

1335

1345

CIRCULATE ... OF HOLE

ARRIVE ON SITE @ 9:00
NEXT DAY TRIP IN 10:15
SUMP PUMP REPAIR
10:15 - 11:15
BEGIN DRILLING FROM
600 @ 11:15

11 35 ...

12:45 ...

... WOT ... HIC

SAND - A/A

SAND - GREY BROWN, QUARTZ RICH
MED TO V. COARSE SAND

SAND - ... FELDSPATHIC
FINE ...

SAND - LIGHT BROWN V. FINE TO MED.

SAND - GREY, MED ... V. COARSE

CLAY - BLUE SILTY

CLAYSTONE - BLUE W/SAND INTERBEDS
NOTES SAND COULD BE SLOUGH

CLAYSTONE - A/A ... LIGHT BROWN SOFT
CLAY INTERBEDS

CLAY ... A/A ...

FUGRO WEST, INC.

201 HOFFMAN AVENUE, SUITE 14
MONTEREY, CALIFORNIA 93940

DRILLING LOG

CLIENT: MCWRA			
WELL: Dolan Rd.	No.:	GEOLOGIST: Dan Erbes	
COUNTY:	STATE:	LOGGING PERSONNEL: Dan Erbes	
TOWNSHIP:	RANGE: / SECTION:	SERVICES PERFORMED: Lithologic Logging & Contractor Supervision	
LOCATION: Dolan & Russo Rds on N. Side of Dolan Rd.		DATE BEGUN: 11/30.	DATE RELEASED:
ELEVATION:	TOTAL DEPTH: 600	INTERVAL LOGGED:	FOOTAGE:
SPUD DATE: 11/30/94	FINAL DATE: 12/5/94	REMARKS:	
DRILLING COMPANY: Redfearn Drilling			
PUSHER: Rick Redfearn			

HOLE SIZE

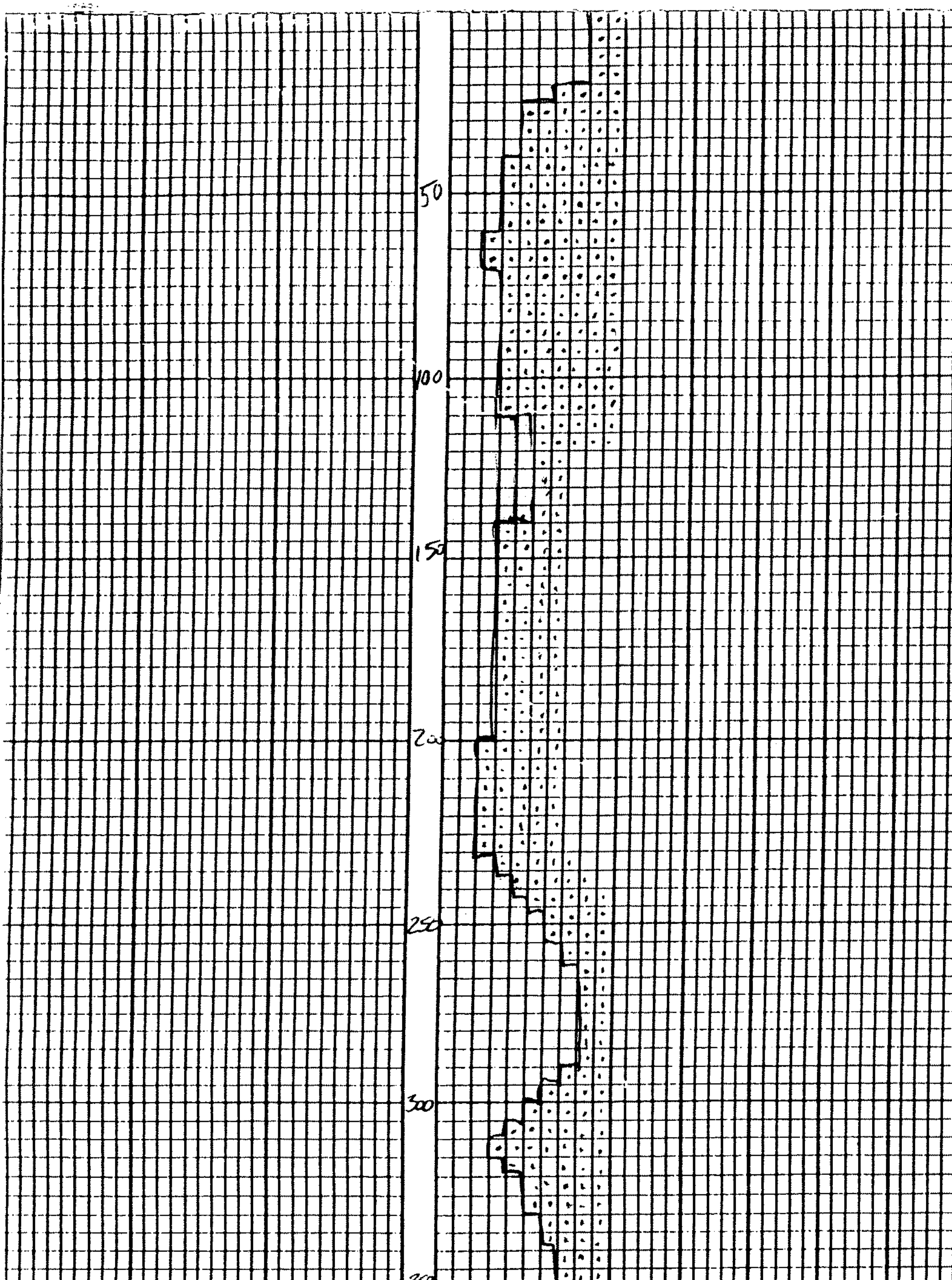
CASING RECORD

ABBREVIATIONS

CO	CIRCULATE OUT	PR	POOR RETURNS
LAT	LOGGED AFTER TRIP	SC	SAND CONTENT (%)
NB	NEW BIT	VIS	VISCOSITY (SECONDS)
NCB	NEW CORE BIT	WL	WATER LOSS (CC/30 MIN)
NR	NO RETURN	WT	FLUID WEIGHT (LBS/CU.FT.)

CLAY SILT SAND GRAVEL

DRILLING RATE (FT/HR)	LITHOLOGY SAND CONCENTRATION	VIS POR POOR FAIR GOOD	GRAIN-SIZE DISTRIBUTION (Value x 10 = %) COARSE	MEDIUM	FINE	VERY FINE	RIG ACTIVITY MUD ADDITIONS AND PROPERTIES	DESCRIPTION AND REMARKS
	50							



SPUD IN @ 8:00
4 BAGS QUICK-GEL

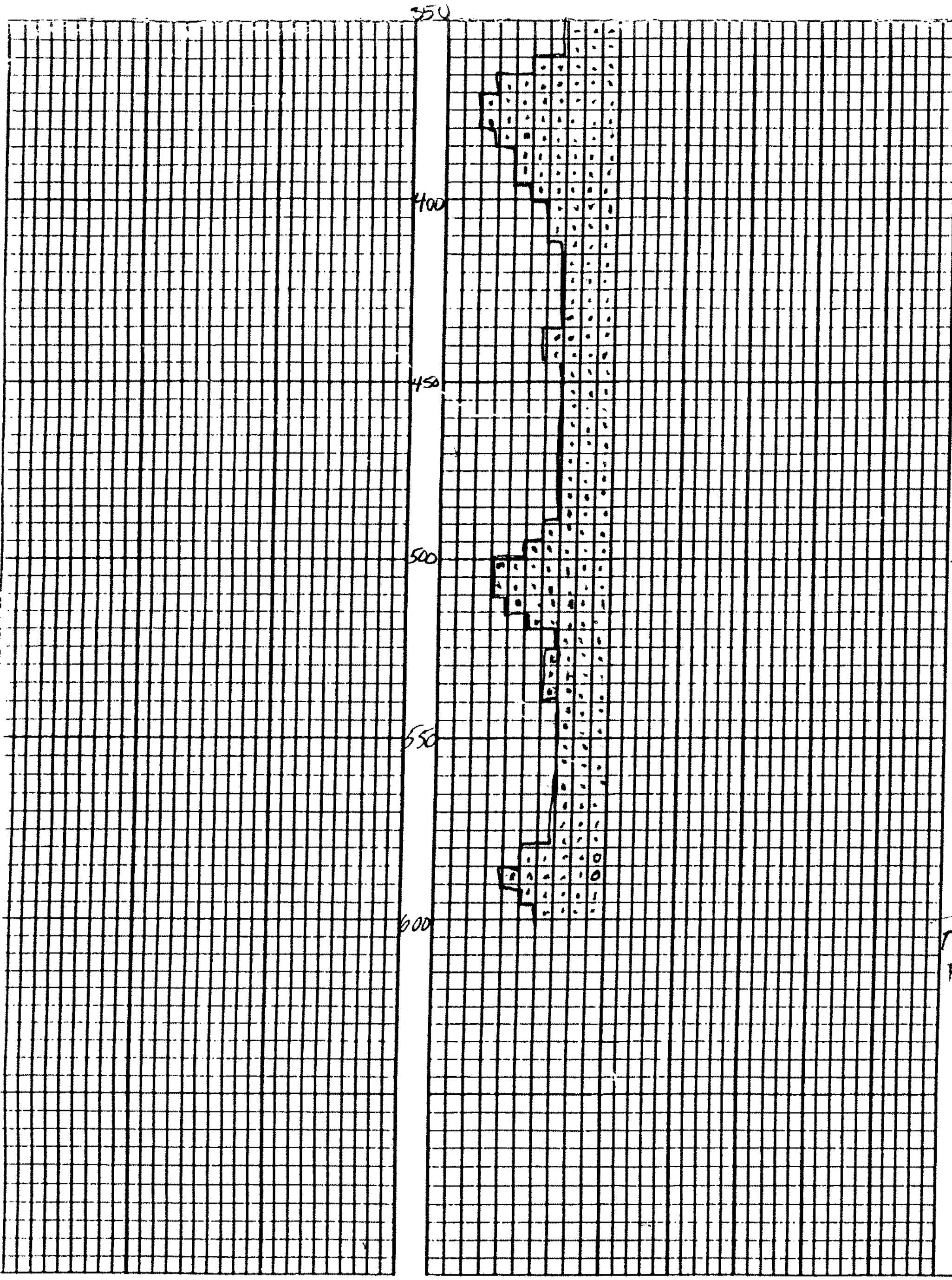
1 BAG QUICK GEL 8:45
1 BAG BENTONITE

9:05

REPAIR SUMP PUMP 9:20

9:40
REPAIR CLOGGED MUD PUMP 9:50
RESUME 9:55

TOP SOIL
CLAY – LIGHT BROWN
CLAY – A/A
CLAY – GREY WITH SAND STRINGERS FINE TO COARSE SAND
SAND – BROWN GREY, STICKY FINE TO MED SAND [illegible]
SAND – A/A REDDISH BROWN W/CLAY STREAKS.
SAND – A/A INCREASED CLAY
SAND – A/A LESS CLAY
SAND – A/A GREY BROWN
SAND – A/A LESS CLAY
SAND – A/A STICKY W/CLAY STREAKS
CLAY – GREY BROWN W/SAND STRINGERS
CLAY – A/A BLUE & GREY BROWN
CLAY – A/A BLUE
CLAY – A/A LIGHT BROWN, SANDY
SAND – QUARTZ (AND DIATOMACEOUS CLASTS) W/CLAY STREAKS
CLAY – LIGHT BROWN W/SAND STRINGERS
CLAY – A/A W/SOME INDURATED BLUE STREAKS AND RED SANDY CLAY



10:50

12:05

RIG DOWN 12:10-
KELLY BROKE 15:05
EC Make up $H_2O \simeq 905$ us/cm

TRIP OUT FOR 15:50-
ROCK BIT 16:30

TRIP OUT 18:15
FOR E LOG

CLAY - A/A

SAND - RED w/CLAY STREAKS SOME
VERY FINE INDURATED SAND STRINGERS
SAND - A/A STICKY VERY FINE TO FINE
CLAY - LIGHT BROWN, SANDY, SOME INDURATED
BLUE CLAY STREAKS

CLAY - A/A NO BLUE CLAY STREAKS
SOME WHITE (DIATOMACEOUS?) MUD STREAKS

CLAY - LIGHT BROWN, w/INDURATED
BLUE CLAY STREAKS & INDURATED
RED SAND STRINGERS

SAND - INDURATED RED w/LIGHT
BROWN INDURATED CLAY STREAKS

CLAY - LIGHT BROWN & BLUE INDURATED
w/SAND STRINGERS

CLAY - A/A

CLAY - A/A w/GRAVEL ([illegible]
[illegible] CLASTS)
CLAY - LESS GRAVEL

APPENDIX B
NORTH COUNTY WATER WELL DATABASE

North Monterey County - Well Construction Summary

25-Apr-95

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/02E-01G50	PRUNEDALE	10/10/50	C.F. DOUGHERTY	8	228	249	258	DOM;	
12S/02E-01T50	PRUNEDALE	11/20/71	ASH & SONS	6	300	336	355	DOM;	
12S/02E-03H51									
12S/02E-03T50	PRUNEDALE	7/10/75	ALSOP & SON	8	312	352	360	DOM;	
12S/02E-09H50	PAJARO-SPRINGFIELD	7/15/77	MAGGIORA BROS	26	150	430	450	IRR;	
12S/02E-09Q50	PAJARO-SPRINGFIELD		DUER				300		
12S/02E-09R50	PAJARO-SPRINGFIELD			14				IND	
12S/02E-09T50	PAJARO-SPRINGFIELD	8/2/78	MAGGIORA BROS	10	170	210	220	IRR;	
12S/02E-10A01	PAJARO-SPRINGFIELD		LITCHFIELD		130	154	165		
12S/02E-10A50	PAJARO-SPRINGFIELD	6/29/77	CLIFFORD PUMP & WELL	16	135	185	225	IRR	
12S/02E-10B50	PAJARO-SPRINGFIELD	4/12/89	C.F. DOUGHERTY	16	220	360	400	IRR;	
12S/02E-10D01	PAJARO-SPRINGFIELD	1/20/53	WESTERN DRILLING	14	120	312	424	IRR;	
12S/02E-10E50	PAJARO-SPRINGFIELD	5/9/86	ARTHUR & ORUM	14	430	595	600	MUN;	
12S/02E-10F50	PAJARO-SPRINGFIELD	7/20/77	MAGGIORA BROS	20	182	335	350		
12S/02E-10F51	PAJARO-SPRINGFIELD	3/19/86	ARTHUR & ORUM				600		HOLE;
12S/02E-10G50	PAJARO-SPRINGFIELD	8/3/84	MAGGIORA BROS	16	370	580	620	DOM;IRR;	
12S/02E-10J02	PAJARO-SPRINGFIELD	6/1/38	LITCHFIELD	14	79	155	186	IRR;	
12S/02E-10K50	PAJARO-SPRINGFIELD	10/9/78	CULLUM SYSTEMS	8	60	200	220	IRR;	
12S/02E-10L50	PAJARO-SPRINGFIELD	4/9/71	FREEDOM GEN REPAIR & PUMP				382		
12S/02E-10L51	PAJARO-SPRINGFIELD	9/3/82	C.F. DOUGHERTY	10	116	156	164	IRR;	
12S/02E-10P50	PAJARO-SPRINGFIELD	5/2/86	ARTHUR & ORUM	14	450	595	600	MUN;	
12S/02E-10P51	PAJARO-SPRINGFIELD	3/17/86	ARTHUR & ORUM				1200		HOLE;
12S/02E-10T50	PAJARO-SPRINGFIELD	4/12/66	MURPHY	14	144	204	212		
12S/02E-10T51	PAJARO-SPRINGFIELD	1/30/75	FREEDOM GEN REPAIR & PUMP	12	136	156	163	IRR;	
12S/02E-11E04	PAJARO-SPRINGFIELD			12				IRR;	
12S/02E-11E50	PAJARO-SPRINGFIELD	4/9/90	MAGGIORA BROS	16	400	560	600	IRR;	
12S/02E-11E51	PAJARO-SPRINGFIELD	6/24/75	SALINAS PUMP CO	12	52	72	170	IRR;	
12S/02E-11F01	PAJARO-SPRINGFIELD	5/1/52	LITCHFIELD	14	124	162	168		
12S/02E-11J01	PAJARO-SPRINGFIELD	8/9/86	MAGGIORA BROS	8	200	350	385	DOM;	
12S/02E-11K50	PAJARO-SPRINGFIELD	3/28/88	MAGGIORA BROS	16	160	260	300	IRR;	
12S/02E-11N50	PAJARO-SPRINGFIELD	11/17/78	CLIFFORD PUMP & WELL	16	70	160	241	IRR	
12S/02E-11P01	PAJARO-SPRINGFIELD	1/1/48		14	114	145	160		ABAN;
12S/02E-11T50	PAJARO-SPRINGFIELD	10/3/63	C.F. DOUGHERTY	14		40	48	DOM;	
12S/02E-11T51	PAJARO-SPRINGFIELD	7/8/74	MAGGIORA BROS				180		
12S/02E-11T52	PAJARO-SPRINGFIELD	11/10/86	MAGGIORA BROS	16	330	430	460	IRR;	
12S/02E-11T53	PAJARO-SPRINGFIELD	11/18/78	CLIFFORD PUMP & WELL	16	95	145	197	IRR	
12S/02E-11T54	PAJARO-SPRINGFIELD	3/4/76	CLIFFORD PUMP & WELL	12	114	212	244	IRR	
12S/02E-12E01	PAJARO-SPRINGFIELD	5/8/69	LITCHFIELD		130	168	168	IRR;	
12S/02E-12J01	PAJARO-SPRINGFIELD	5/1/47	LITCHFIELD	10	123	162	167	IRR;	
12S/02E-12K01	PAJARO-SPRINGFIELD	7/1/32	LITCHFIELD	10	125	175	180	IRR;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/02E-12K50	PAJARO-SPRINGFIELD	4/20/85	MAGGIORA BROS	16	320	455	485	IRR;	
12S/02E-12M01	PAJARO-SPRINGFIELD	4/9/81	MAGGIORA BROS	16	100	170	200	DOM;	
12S/02E-12T50	PAJARO-SPRINGFIELD	6/9/61	MURPHY	10	104	152	156	DOM;	
12S/02E-12T51	PAJARO-SPRINGFIELD	6/28/71	CLIFFORD PUMP & WELL	8	134	166	174	DOM	
12S/02E-12T52	PAJARO-SPRINGFIELD	3/7/77	CLIFFORD PUMP & WELL	16	88	158	296	IRR	
12S/02E-13A01	PRUNEDALE				90	164	164		
12S/02E-13A50	PAJARO-SPRINGFIELD				111	134	164		
12S/02E-13A51	PRUNEDALE	9/9/84	ROBINETT & SONS	8	284	444	444	DOM;	
12S/02E-13C01	PRUNEDALE	12/5/77	ROBINETT	8	200	315	315	DOM;	
12S/02E-13C50	PAJARO-SPRINGFIELD		ROBINETT & SONS		200	315	315	DOM;	
12S/02E-13D01	PRUNEDALE	8/4/67	C.F. DOUGHERTY	12	194	274	284	DOM;	
12S/02E-13F50	PRUNEDALE	2/26/71	C.F. DOUGHERTY	8	152	192	200	DOM;	
12S/02E-13H50	PRUNEDALE	7/24/84	C.F. DOUGHERTY	10	136	188	196	DOM;	
12S/02E-13N01	PRUNEDALE	12/1/60	DUER	12	260	320	320		
12S/02E-13N02	PRUNEDALE	5/25/65	C.F. DOUGHERTY	8	316	356	368	DOM;	
12S/02E-13N03	PRUNEDALE	5/10/68	C.F. DOUGHERTY	8	224	264	272	DOM;	
12S/02E-13Q50	PAJARO-SPRINGFIELD	5/29/92	ROBINETT & SONS	8	400	510	510	DOM;	
12S/02E-13R50	PRUNEDALE	10/13/77	ASH & SONS	7	318	350	350	DOM;	
12S/02E-13T50	PRUNEDALE	3/8/81	ASH & SONS	5	257	307	320	DOM;	
12S/02E-13T51	PRUNEDALE	1/9/73	ASH & SONS	7	160	196	196	DOM;	
12S/02E-13T52	PAJARO-SPRINGFIELD	5/31/71	CLIFFORD PUMP & WELL	10	260	320	334	DOM/IRR	
12S/02E-13T53	PRUNEDALE	5/5/60	C.F. DOUGHERTY	8	104	144	152	DOM;	
12S/02E-13T54	PRUNEDALE	8/18/70	C.F. DOUGHERTY	8	112	152	160	DOM;	
12S/02E-13T55	PRUNEDALE	9/9/70	CLIFFORD PUMP & WELL	14	180	228	228	IRR	
12S/02E-13T56	PAJARO-SPRINGFIELD	8/15/73	C.F. DOUGHERTY	12	316	376	388	DOM;	
12S/02E-14A50	PRUNEDALE	5/27/82	C.F. DOUGHERTY	8	228	268	276	DOM;	
12S/02E-14B50	PRUNEDALE	1/6/84	MELVILLE & SON	10	143	294	300	IRR;	
12S/02E-14E50	PAJARO-SPRINGFIELD	8/31/89	MAGGIORA BROS	6	110	240	300	DOM;	
12S/02E-14F50	PAJARO-SPRINGFIELD	1/5/73	FREEDOM GEN REPAIR & PUMP				260		
12S/02E-14F51	PAJARO-SPRINGFIELD	1/5/73	FREEDOM GEN REPAIR & PUMP	8	164	204	237	DOM	
12S/02E-14G50	PAJARO-SPRINGFIELD	8/22/89	ASH & SONS	5	260	300	310	DOM;	
12S/02E-14G51	PRUNEDALE	4/15/80	MAGGIORA BROS	12	390	450	485	DOM;	
12S/02E-14G52	PAJARO-SPRINGFIELD	1/10/89	ASH & SONS	6	360	400	420	DOM;	
12S/02E-14H01	PRUNEDALE	6/27/83	MAGGIORA BROS	8	250	310	320	DOM;	
12S/02E-14H50	PAJARO-SPRINGFIELD	1/27/92	DOUGHERTY PUMP & DRILLING	5	220	300	300	DOM;	
12S/02E-14L50	PAJARO-SPRINGFIELD	2/6/92	ASH & SONS	5	260	300	300	DOM;	
12S/02E-14N01	PRUNEDALE	8/26/60	FREEDOM GEN REPAIR & PUMP	12	190	270	274	IRR;	
12S/02E-14N02	PRUNEDALE	8/4/67	FREEDOM GEN REPAIR & PUMP	8	120	150	169	DOM;	
12S/02E-14N03	PRUNEDALE							DOM;	
12S/02E-14N50	PAJARO-SPRINGFIELD	1/18/90	ASH & SONS	5	335	375	380	DOM;	
12S/02E-14N51	PAJARO-SPRINGFIELD	1/10/90	ASH & SONS	5	265	305	320	DOM;	
12S/02E-14P50	PRUNEDALE	4/28/82	MAGGIORA BROS	6	175	245	265	DOM;	
12S/02E-14P51	PRUNEDALE	12/9/78	CULLUM SYSTEMS	8	180	280	300	DOM;IRR;	
12S/02E-14P52	PAJARO-SPRINGFIELD	11/13/89	ASH & SONS	5	280	320	380	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/02E-14Q01	PRUNEDALE	1/1/56	DUER	10	180	220	220	IRR;	
12S/02E-14Q50	PRUNEDALE	7/26/74	MAGGIORA BROS	13	365	395	430	DOM;	
12S/02E-14Q51	PRUNEDALE	4/24/84	ASH & SONS	5	316	356	365	DOM;	
12S/02E-14Q52	PRUNEDALE	12/30/88	ASH & SONS	5	200	240	242	DOM;	
12S/02E-14Q53	PRUNEDALE	3/29/86	ASH & SONS	5	270	310	340	DOM;	
12S/02E-14Q54	PRUNEDALE	7/2/91	ASH & SONS		220	260	260	DOM	
12S/02E-14Q55	PAJARO-SPRINGFIELD	12/2/92	ASH & SONS	5	200	240	240	DOM	
12S/02E-14Q56	PAJARO-SPRINGFIELD	12/17/93	ASH & SONS	5	420	460	460	DOM	
12S/02E-14Q57	PRUNEDALE	1/26/94	ASH & SONS				210		DESTROYED
12S/02E-14R50	PAJARO-SPRINGFIELD	8/16/91	ASH & SONS	5	284	324	324	DOM	
12S/02E-14T50	PRUNEDALE	12/13/71	C.F. DOUGHERTY	8	204	244	252	DOM;	
12S/02E-14T51	PRUNEDALE	4/2/70	C.F. DOUGHERTY	8	132	172	180	DOM;	
12S/02E-14T52	PAJARO-SPRINGFIELD	11/5/76	FREEDOM GEN REPAIR & PUMP	8	228	260	260		
12S/02E-14T53	PRUNEDALE	5/28/77	MAGGIORA BROS	13	250	300	340	DOM;	
12S/02E-14T54	PRUNEDALE	4/26/66	ASH & SONS	6	244	264	306	DOM;	
12S/02E-14T55	PRUNEDALE	8/13/69	C.F. DOUGHERTY	8	132	172	180	DOM;	
12S/02E-14T56	PRUNEDALE	3/18/76	ASH & SONS	7	138	170	185	DOM;	
12S/02E-14T57	PRUNEDALE	7/1/69	C.F. DOUGHERTY	8	120	160	168	DOM;	
12S/02E-14T58	PRUNEDALE	2/12/80	ASH & SONS	6	138	170	180	DOM;	
12S/02E-14T59	PRUNEDALE	6/2/77	MAGGIORA BROS	6	240	290	340	DOM;	
12S/02E-14T60	PRUNEDALE	1/7/79	ASH & SONS	7	320	350	372	DOM;	
12S/02E-14T61	PRUNEDALE	10/4/66	FREEDOM GEN REPAIR & PUMP	8	100	148	180	DOM;	
12S/02E-14T62	PAJARO-SPRINGFIELD	10/26/82	D.B. DRILLING	6	200	370	370	DOM;	
12S/02E-15A50	PAJARO-SPRINGFIELD	11/3/81	MAGGIORA BROS	16	110	150	185	DOM;IRR;	
12S/02E-15A51	PAJARO-SPRINGFIELD	7/30/80	CLIFFORD PUMP & WELL	16	100	160	182	IRR	
12S/02E-15C50	PAJARO-SPRINGFIELD	1/9/90	MAGGIORA BROS	30	320	420	460	IRR;	
12S/02E-15D50	PRUNEDALE	10/9/72	ASH & SONS	7	160	200	210	DOM;IND;	
12S/02E-15E01	PAJARO-SPRINGFIELD	6/8/66	FREEDOM GEN REPAIR & PUMP	14	90	284	320	IRR;	
12S/02E-15J50	PRUNEDALE	3/16/81	C V DRILLING	5	220	320	340	DOM;	
12S/02E-15K50	PAJARO-SPRINGFIELD	3/15/83	ASH & SONS	5	120	160	220	DOM;	
12S/02E-15K51	PAJARO-SPRINGFIELD	10/16/90	MAGGIORA BROS	10	320	400	505	DOM;	
12S/02E-15M50	PAJARO-SPRINGFIELD	2/18/85	C.F. DOUGHERTY	16	138	198	208	IRR;	
12S/02E-15M51	PAJARO-SPRINGFIELD	6/10/86	C.F. DOUGHERTY	10	320	460	480	IRR;	
12S/02E-15Q01	PRUNEDALE	10/26/82	DB DRILLING CO	6	200	270	370	DOM;	
12S/02E-15Q50	PRUNEDALE	1/7/87	C.F. DOUGHERTY	6	163	203	208	DOM;	
12S/02E-15R01	PRUNEDALE	12/14/77	MAGGIORA BROS	8	102	290	300	DOM;	
12S/02E-15R50	PRUNEDALE	11/4/87	C.F. DOUGHERTY	6	200	240	240	DOM;	
12S/02E-15R51	PRUNEDALE	12/31/87	MAGGIORA BROS	6	130	190	230	DOM;	
12S/02E-15R52	PAJARO-SPRINGFIELD	10/17/89	SALINAS PUMP CO				150		DES
12S/02E-15R53	PRUNEDALE	11/6/87	C.F. DOUGHERTY	6	160	200	200	DOM;	
12S/02E-15R54	PAJARO-SPRINGFIELD	8/28/89	SALINAS PUMP CO	5	140	360	360	DOM;	
12S/02E-15R55	PAJARO-SPRINGFIELD	5/5/89	C.F. DOUGHERTY	5	200	240	240	DOM;	
12S/02E-15R56	PRUNEDALE	2/19/91	MAGGIORA BROS	8	280	400	420	DOM	
12S/02E-15T50	PRUNEDALE	5/22/76	MAGGIORA BROS	12	114	134	140	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/02E-15T51	PRUNEDALE	2/8/63	C.F. DOUGHERTY	8	92	132	140	DOM;	
12S/02E-15T52	PRUNEDALE	6/10/70	CLIFFORD PUMP & WELL	14	114	194	200	IRR	
12S/02E-15T53	PRUNEDALE	6/9/61	C.F. DOUGHERTY	10	200	240	248	DOM;	
12S/02E-15T54	PRUNEDALE	8/10/66	C.F. DOUGHERTY	8	144	164	172	DOM;	
12S/02E-15T55	PRUNEDALE	8/2/69	C.F. DOUGHERTY	8	188	288	236	DOM;	
12S/02E-15T56	PRUNEDALE	1/13/76	C.F. DOUGHERTY	8	144	184	192	DOM;	
12S/02E-15T57	PAJARO-SPRINGFIELD	12/5/78	MAGGIORA BROS	12	100	160	175	DOM;	
12S/02E-15T58	PAJARO-SPRINGFIELD	8/6/76	MAGGIORA BROS	6	155	190	203	DOM;	
12S/02E-15T61	PRUNEDALE	9/26/91	MAGGIORA BROS				64		DES
12S/02E-15T62	PAJARO-SPRINGFIELD		MAGGIORA BROS	2			15	MON	DES
12S/02E-15T64	PAJARO-SPRINGFIELD		MAGGIORA BROS	2			15	MON	DES
12S/02E-15T65	PAJARO-SPRINGFIELD	11/30/93	MAGGIORA BROS				175		DESTROYED
12S/02E-16A50	PAJARO-SPRINGFIELD	8/18/93	SB&S DRILLING	2	5	15	15	MON	
12S/02E-16A51	PAJARO-SPRINGFIELD	8/18/93	SB&S DRILLING	2	5	15	15	MON	
12S/02E-16A52	PAJARO-SPRINGFIELD	8/18/93	SB&S DRILLING	2	5	15	15	MON	
12S/02E-16F01	PAJARO-SPRINGFIELD							IRR;	
12S/02E-16H01	PAJARO-SPRINGFIELD	4/1/49	DUER	7			126		
12S/02E-16H02	PAJARO-SPRINGFIELD	7/1/38	LITCHFIELD	12	130	166	177	IRR;	
12S/02E-16J01	PAJARO-SPRINGFIELD							IRR;	
12S/02E-16L01	PAJARO-SPRINGFIELD	11/20/70						IRR;	
12S/02E-16Q01	PAJARO-SPRINGFIELD	5/4/62	VALLEY PUMP	12	288	432	700	IRR;	
12S/02E-16T50	PAJARO-SPRINGFIELD	10/4/72	ASH & SONS	7	40	56	60	DOM;	
12S/02E-16T51	PAJARO-SPRINGFIELD	6/28/71	CLIFFORD PUMP & WELL	10	180	204	204	IRR	
12S/02E-16T52	PAJARO-SPRINGFIELD	12/21/74	MAGGIORA BROS	20	140	190	295	IRR;	
12S/02E-16T53	PAJARO-SPRINGFIELD	6/5/75	MAGGIORA BROS	20	140	360	340	IND;	
12S/02E-17R01	PAJARO-SPRINGFIELD	1/17/61		20				IRR;	
12S/02E-19A01	PAJARO-SPRINGFIELD	1/17/61		14				IRR;	DES;
12S/02E-19A02	PAJARO-SPRINGFIELD							IRR;	
12S/02E-19B01	PAJARO-SPRINGFIELD	1/1/20					195		
12S/02E-19B02	PAJARO-SPRINGFIELD	8/1/65						IRR;	
12S/02E-19E02	PAJARO-SPRINGFIELD	1/1/38	LITCHFIELD				138		
12S/02E-19F50	PAJARO-SPRINGFIELD	12/8/88	EATON	16	390	630	740	IRR;	
12S/02E-19F51	PAJARO-SPRINGFIELD	12/2/88	EATON	16	380	600	614	IRR;	
12S/02E-19F52	PAJARO-SPRINGFIELD	12/8/88	EATON	16	390	630	740	IRR;	
12S/02E-19L01	PRUNEDALE	9/1/25	LITCHFIELD						
12S/02E-19M01	PAJARO-SPRINGFIELD	10/18/60	LITCHFIELD	15	145	218	225		
12S/02E-19M50	PAJARO-SPRINGFIELD	4/15/75	SALINAS PUMP CO	14	244	388	469	IRR;	
12S/02E-20J50	PAJARO-SPRINGFIELD	4/27/79	MAGGIORA BROS	12	200	310	330	IRR;	
12S/02E-20J51	PAJARO-SPRINGFIELD	8/25/88	C.F. DOUGHERTY				235		DES
12S/02E-20K01	PAJARO-SPRINGFIELD	10/18/48	FREEDOM GEN REPAIR & PUMP	12	200	290	310	IRR;	
12S/02E-20K02	PAJARO-SPRINGFIELD	11/1/49	FREEDOM GEN REPAIR & PUMP	12	200	290	310	IRR;	ABAN;
12S/02E-20N01	PAJARO-SPRINGFIELD	10/1/49	FREEDOM GEN REPAIR & PUMP	12	200	290	300	IRR;	ABAN;
12S/02E-20P01	PAJARO-SPRINGFIELD	9/27/84	ASH & SONS	8	425	485	495	DOM;	
12S/02E-20T50	PAJARO-SPRINGFIELD	10/20/69	FREEDOM GEN REPAIR & PUMP	8	38	68	72	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/02E-20T51	PAJARO-SPRINGFIELD	6/28/68	C.F. DOUGHERTY	12	4	32	36	DOM;	
12S/02E-20T52	PAJARO-SPRINGFIELD	1/22/69	THE PUMP SHOP	10	240	280	288	IND;	
12S/02E-20T53	PAJARO-SPRINGFIELD	11/20/71	FREEDOM GEN REPAIR & PUMP	8	52	68	72	DOM;	
12S/02E-21A01	PAJARO-SPRINGFIELD		LITCHFIELD				214		
12S/02E-21A02	PAJARO-SPRINGFIELD	7/1/51	LITCHFIELD				186		
12S/02E-21A03	PAJARO-SPRINGFIELD	1/1/51	LITCHFIELD		115	148	180		
12S/02E-21F01	PAJARO-SPRINGFIELD	1/1/47		8	48	0	320	DOM;	
12S/02E-21H	PRUNEDALE					384	396		
12S/02E-21H01	PRUNEDALE	6/14/68	VALLEY PUMP	12	108	384	396	DOM;	
12S/02E-21H50	PAJARO-SPRINGFIELD	6/27/87	C.F. DOUGHERTY	6	190	250	260	DOM;	
12S/02E-21H51	PAJARO-SPRINGFIELD	6/14/68	VALLEY PUMP	12	108	384	453	DOM;	
12S/02E-21H52	PAJARO-SPRINGFIELD	8/16/89	MAGGIORA BROS	10	294	460	525	MUN;	
12S/02E-21J50	PAJARO-SPRINGFIELD	9/26/67	C.F. DOUGHERTY	8	60	100	108	DOM;	
12S/02E-21L01	PAJARO-SPRINGFIELD	5/6/57					480	IRR;	ABAN;
12S/02E-21L50	PAJARO-SPRINGFIELD	5/19/90	SALINAS PUMP CO				78		DES
12S/02E-21L51	PAJARO-SPRINGFIELD	10/17/67	FREEDOM GEN REPAIR & PUMP	10	54	70	70	DOM;	
12S/02E-21M01	PAJARO-SPRINGFIELD			8	200	244	252	DOM;	
12S/02E-21M50	PAJARO-SPRINGFIELD	5/19/90	SALINAS PUMP CO				53		DES
12S/02E-21M51	PAJARO-SPRINGFIELD	5/19/90	SALINAS PUMP CO				220		DES
12S/02E-21M52	PAJARO-SPRINGFIELD	5/19/90	SALINAS PUMP CO				114		DES
12S/02E-21M53	PAJARO-SPRINGFIELD	9/29/89	SALINAS PUMP CO				275		DES
12S/02E-21M54	PAJARO-SPRINGFIELD	9/29/89	SALINAS PUMP CO				25		DES
12S/02E-21M55	PAJARO-SPRINGFIELD	5/19/90	SALINAS PUMP CO				68		DES
12S/02E-21M56	PAJARO-SPRINGFIELD	8/12/76	MAGGIORA BROS	12	233	253	263	DOM;	
12S/02E-21M57	PAJARO-SPRINGFIELD	9/29/89	SALINAS PUMP CO				90		DES
12S/02E-21M58	PAJARO-SPRINGFIELD	9/29/89	SALINAS PUMP CO				300		DES
12S/02E-21M59	PAJARO-SPRINGFIELD	11/24/82	FREEDOM GEN REPAIR & PUMP	6	240	260	260	DOM;	
12S/02E-21M60	PAJARO-SPRINGFIELD	2/10/88	FREEDOM GEN REPAIR & PUMP	8	228	248	248	DOM;	
12S/02E-21N50	PAJARO-SPRINGFIELD	5/19/90	SALINAS PUMP CO				60		DES
12S/02E-21N51	PAJARO-SPRINGFIELD	1/21/83	FREEDOM GEN REPAIR & RUMP	6	244	264	269	DOM;	
12S/02E-21N52	PAJARO-SPRINGFIELD	4/8/83	FREEDOM GEN REPAIR & PUMP	6	242	262	262	DOM;	
12S/02E-21P50	PAJARO-SPRINGFIELD	5/6/78	FREEDOM GEN REPAIR & PUMP	8	219	251	270	DOM;	
12S/02E-21P51	PAJARO-SPRINGFIELD	6/2/71	FREEDOM GEN REPAIR & PUMP	8	48	60	80	DOM;	
12S/02E-21Q50	PAJARO-SPRINGFIELD	3/30/90	ASH & SONS	5	275	315	321	DOM;	
12S/02E-21Q51	PAJARO-SPRINGFIELD	10/22/87	ASH & SONS	5	180	220	220	DOM;	
12S/02E-21R50	PAJARO-SPRINGFIELD	9/30/83	ASH & SONS	5	160	200	200	DOM;	
12S/02E-21R51	PAJARO-SPRINGFIELD	1/11/85	MAGGIORA BROS	6	95	135	145	DOM;	
12S/02E-21R52	PAJARO-SPRINGFIELD	10/7/77	C.F. DOUGHERTY	10	120	160	168	DOM;	
12S/02E-21T50	PAJARO-SPRINGFIELD	11/24/78	MAGGIORA BROS	12	170	220	240	DOM;	
12S/02E-21T51	PAJARO-SPRINGFIELD	6/28/85	MELVILLE & SON	8	180	320	320	DOM;	
12S/02E-21T52	PAJARO-SPRINGFIELD	11/15/78	MAGGIORA BROS	12	155	185	195	DOM;	
12S/02E-21T53	PAJARO-SPRINGFIELD	3/15/65	C.F. DOUGHERTY	8	120	160	168	DOM;	
12S/02E-21T54	PAJARO-SPRINGFIELD	10/24/75	SALINAS PUMP CO	12	136	184	192	IRR;	
12S/02E-21T55	PRUNEDALE	8/1/79	SALINAS PUMP CO	12	187	316	320	IND;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/02E-21T56	PAJARO-SPRINGFIELD	11/26/69	C.F. DOUGHERTY	8	108	148	156	DOM;	
12S/02E-21T57	PAJARO-SPRINGFIELD	11/6/71	FREEDOM GEN REPAIR & PUMP	8	66	72	72	DOM;	
12S/02E-21T58	PAJARO-SPRINGFIELD	8/17/76	MAGGIORA BROS	13	74	94	204	DOM;	
12S/02E-21T59	PAJARO-SPRINGFIELD	2/25/75	FREEDOM GEN REPAIR & PUMP	8	88	104	104	DOM;	
12S/02E-21T60	PRUNEDALE	12/30/81	FREEDOM GEN REPAIR & PUMP	6	223	238	250	DOM;	
12S/02E-21T61	PAJARO-SPRINGFIELD	6/17/66	FREEDOM GEN REPAIR & PUMP	6	98	122	122	DOM;	
12S/02E-21T62	PAJARO-SPRINGFIELD		ROBINETT & SONS	6	192	292	292	DOM;	
12S/02E-21T63	PAJARO-SPRINGFIELD	11/26/71	C.F. DOUGHERTY	8	108	148	156	DOM;	
12S/02E-21T64	PAJARO-SPRINGFIELD	9/23/69	FREEDOM GEN REPAIR & PUMP	8	60	80	82	DOM;	
12S/02E-21T65	PAJARO-SPRINGFIELD	3/1/67	FREEDOM GEN REPAIR & PUMP	8	244	252	256	DOM;	
12S/02E-21T66	PAJARO-SPRINGFIELD	5/19/76	CLIFFORD PUMP & WELL	6	154	184	256	DOM	
12S/02E-21T67	PAJARO-SPRINGFIELD	8/11/75	MAGGIORA BROS	16	220	290	295	IRR;	
12S/02E-21T68	PAJARO-SPRINGFIELD	6/26/73	C.F. DOUGHERTY	8	180	220	228	DOM;	
12S/02E-21T69	PAJARO-SPRINGFIELD	4/18/77	MAGGIORA BROS	26	130	440	460	IRR;	
12S/02E-21T70	PAJARO-SPRINGFIELD	1/31/77	MAGGIORA BROS	12	109	129	140	DOM;	
12S/02E-21T71	PAJARO-SPRINGFIELD	9/30/68	FREEDOM GEN REPAIR & PUMP	8	56	76	80	DOM;	
12S/02E-21T72	PAJARO-SPRINGFIELD	5/18/71	FREEDOM GEN REPAIR & PUMP	8	56	72	72	IRR;	
12S/02E-21T73	PAJARO-SPRINGFIELD							IRR;	
12S/02E-21T74	PAJARO-SPRINGFIELD	8/17/83	FREEDOM GEN REPAIR & PUMP	6	214	234	234	DOM	DESTROYED
12S/02E-21T75	PAJARO-SPRINGFIELD	9/24/72	MURPHY PUMP & SUPPLY CO	8	260	300	300	DOM/IRR	DESTROYED
12S/02E-22B01	PRUNEDALE	11/2/71	FREEDOM GEN REPAIR & PUMP	8	96	112	129	DOM;	
12S/02E-22B50	PRUNEDALE	1/9/85	C.F. DOUGHERTY	8	204	244	252	DOM;	
12S/02E-22L50	PAJARO-SPRINGFIELD			12	180	200	280	DOM;	
12S/02E-22M01	PAJARO-SPRINGFIELD			6	154	194	256	DOM;	
12S/02E-22M50	PAJARO-SPRINGFIELD	11/7/77	ASH & SONS	6	91	111	111	DOM;	
12S/02E-22Q50	PRUNEDALE	9/12/86	MAGGIORA BROS	12	290	500	600	MUN;	
12S/02E-22T50	PRUNEDALE	12/8/61	C.F. DOUGHERTY	8	108	148	156	DOM;	
12S/02E-22T51	PRUNEDALE	1/11/54	C.F. DOUGHERTY	10	145	177	181	DOM;	
12S/02E-22T52	PRUNEDALE	8/19/76	MAGGIORA BROS	12	115	165	200	DOM;	
12S/02E-22T53	PRUNEDALE	12/22/78	C.F. DOUGHERTY	8	144	184	192	DOM;	
12S/02E-22T54	PRUNEDALE	6/3/72	ASH & SONS	6	220	256	265	DOM;	
12S/02E-22T55	PRUNEDALE	10/20/72	C.F. DOUGHERTY	8	108	140	148	IRR;	
12S/02E-22T56	PRUNEDALE	6/4/72	ASH & SONS	6	116	152	165	DOM;	
12S/02E-22T57	PRUNEDALE	4/9/76	CLIFFORD PUMP & WELL	6	165	185	208	DOM	
12S/02E-23K01	PRUNEDALE	12/19/49	C.F. DOUGHERTY	8	261	282	291	DOM;	
12S/02E-23L50	PAJARO-SPRINGFIELD	7/19/88	ASH & SONS	8	350	370	420	DOM;	
12S/02E-23P50	PRUNEDALE	3/4/86	ASH & SONS	8	250	310	330	IRR;	
12S/02E-23P51	PRUNEDALE	11/30/83	ASH & SONS	8			260	IRR;	
12S/02E-23P52	PAJARO-SPRINGFIELD	7/23/88	ASH & SONS	10	345	365	420	DOM;	
12S/02E-23P53	PAJARO-SPRINGFIELD	7/23/88	ASH & SONS	8	290	310	360	IRR;	
12S/02E-23Q50	PRUNEDALE	1/24/50	C.F. DOUGHERTY	8	249	270	279	DOM;	
12S/02E-23R01	PRUNEDALE	10/15/49	C.F. DOUGHERTY	8	186	207	216		
12S/02E-23T50	PRUNEDALE	6/27/74	C.F. DOUGHERTY	8	228	268	276	DOM;	
12S/02E-23T51	PRUNEDALE	5/20/85	C.F. DOUGHERTY	8	190	232	240	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/02E-23T52	PRUNEDALE	7/6/62	C.F. DOUGHERTY	8	112	152	160	DOM;	
12S/02E-23T53	PRUNEDALE	1/30/75	ROBINETT & SONS	6	173	273	273	IRR;	
12S/02E-23T54	PRUNEDALE	11/2/53	J B BROOKS DRILLING	12	338	440	440	IRR;	
12S/02E-24A01	PRUNEDALE	10/21/78	ASH & SONS	8	263	295	307	PRIVATE	
12S/02E-24A50	PRUNEDALE	2/13/91	SALINAS PUMP CO	5	240	400	400	DOM	
12S/02E-24B50	PAJARO-SPRINGFIELD	3/24/87	EMCON	5	110	140	140	MON	
12S/02E-24B51	PAJARO-SPRINGFIELD	3/25/87	EMCON	5	150	190	190	MON	
12S/02E-24C50	PAJARO-SPRINGFIELD	4/30/87	EMCON	5	150	210	210	MON	
12S/02E-24C51	PAJARO-SPRINGFIELD	3/23/87	EMCON	5	100	150	216	MON	
12S/02E-24H50	PRUNEDALE	11/18/86	C.F. DOUGHERTY	6	240	280	288	DOM;	
12S/02E-24J50	PRUNEDALE	2/5/81	ASH & SONS	5	165	195	205	DOM;	
12S/02E-24J51	PRUNEDALE	4/3/80	ASH & SONS	5	214	254	265	DOM;	
12S/02E-24Q01	PRUNEDALE	9/26/53	C.F. DOUGHERTY	12	212	252	260	DOM;	
12S/02E-24Q02	PRUNEDALE	4/16/73	DOUGHERTY PUMP & DRILLING	8	196	236	244	DOM;	
12S/02E-24Q50	PRUNEDALE	1/27/78	MAGGIORA BROS	16	220	340	355	DOM;	
12S/02E-24R50	PRUNEDALE	9/19/86	ASH & SONS	8	200	260	285	DOM;	
12S/02E-24R51	PAJARO-SPRINGFIELD	12/1/89	C.F. DOUGHERTY	5	300	360	360	DOM;	
12S/02E-24T50	PRUNEDALE	12/8/65	ASH & SONS	6	190	256	290	DOM;	
12S/02E-24T51	PRUNEDALE	7/18/71	CLIFFORD PUMP & WELL	10	180	220	220	DOM	
12S/02E-24T52	PRUNEDALE	10/21/71	CLIFFORD PUMP & WELL	8	144	184	184	DOM	
12S/02E-24T53	PRUNEDALE	5/9/80	ASH & SONS	6	146	176	201	DOM;	
12S/02E-24T54	PRUNEDALE	4/14/61	C.F. DOUGHERTY	10	148	188	196	IRR;	
12S/02E-24T55	PRUNEDALE	4/29/76	C.F. DOUGHERTY	8	136	176	184	DOM;	
12S/02E-24T56	PRUNEDALE	6/3/69	C.F. DOUGHERTY	8	354	414	424	DOM;	
12S/02E-24T57	PRUNEDALE	2/4/81	ASH & SONS	6	300	340	366		
12S/02E-24T58	PRUNEDALE	12/9/65	ASH & SONS	6	190	256	290	DOM;	
12S/02E-24T59	PRUNEDALE	11/15/86	ROMAN WELL DRILLING	5	260	500	500	DOM;	
12S/02E-25A01	PRUNEDALE	6/18/58	C.F. DOUGHERTY	8	200	240	248	DOM;	
12S/02E-25B02	PRUNEDALE								
12S/02E-25E50	PRUNEDALE	10/16/54	C.F. DOUGHERTY	8	56	88	96	DOM;	
12S/02E-25F50	PRUNEDALE	6/25/77	C.F. DOUGHERTY	12	370	430	440	IRR;	
12S/02E-25G50	PAJARO-SPRINGFIELD	12/24/91	DOUGHERTY PUMP & DRILLING	5	360	420	420	DOM;	
12S/02E-25J01	PRUNEDALE							IRR;	
12S/02E-25J50	PRUNEDALE	8/20/50	C.F. DOUGHERTY	8	78	120	129	DOM;	
12S/02E-25K01	PRUNEDALE							DOM;	
12S/02E-25K50	PRUNEDALE	2/22/84	ASH & SONS	8	214	254	263	IRR;	
12S/02E-25K51	PRUNEDALE	1/16/78	C.F. DOUGHERTY	8	170	210	218	DOM;	
12S/02E-25L50	PRUNEDALE	7/23/79	C.F. DOUGHERTY	8	160	200	208	DOM;	
12S/02E-25L51	PRUNEDALE	10/20/88	C.F. DOUGHERTY	6	240	300	303	DOM;	
12S/02E-25M01	PRUNEDALE							DOM;	
12S/02E-25M02	PAJARO-SPRINGFIELD							DOM;	
12S/02E-25M50	HALL DISTRICT	3/10/80	ASH & SONS	8	213	253	275	DOM;IRR;	
12S/02E-25M51	HALL DISTRICT	9/27/79	C.F. DOUGHERTY	8	160	200	208	DOM;	
12S/02E-25N01	PRUNEDALE	1/1/52	DUER				100	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/02E-25N02	PAJARO-SPRINGFIELD								
12S/02E-25N50	HALL DISTRICT	1/10/91	ASH & SONS	5	160	200	205	DOM;	
12S/02E-25P01	PRUNEDALE						200	IRR;	
12S/02E-25P02	PAJARO-SPRINGFIELD	3/10/66	C.F. DOUGHERTY	10	116	196	204	DOM;	
12S/02E-25P03	PAJARO-SPRINGFIELD			8					
12S/02E-25P50	PRUNEDALE	12/29/82	ASH & SONS	8	195	275	285	IRR;	
12S/02E-25Q01	PAJARO-SPRINGFIELD	3/1/72	ASH & SONS	6	120	156	170		
12S/02E-25Q50	PAJARO-SPRINGFIELD		LANDINO CONSTRUCTION	8			95		DES
12S/02E-25Q51	PRUNEDALE	8/1/58	LANDINO CONSTRUCTION	10			290		DES
12S/02E-25R50	PRUNEDALE	7/7/50	C.F. DOUGHERTY	8	30	51	60	DOM;	
12S/02E-25R51	PAJARO-SPRINGFIELD	5/10/74	SALINAS PUMP CO	10	48	96	110	DOM;	
12S/02E-25T50	PRUNEDALE	2/4/64	C.F. DOUGHERTY	8	32	72	80	DOM;	
12S/02E-25T51	PRUNEDALE	10/25/52	C.F. DOUGHERTY	12	47	98	105	DOM;	
12S/02E-25T52	PRUNEDALE	11/1/61	C.F. DOUGHERTY	10	240	280	288	DOM;	
12S/02E-25T53	PRUNEDALE	7/30/71	C.F. DOUGHERTY	8	112	152	160	DOM;	
12S/02E-25T54	PRUNEDALE		ROBINETT & SONS	8	297	397	397	DOM;	
12S/02E-25T55	PRUNEDALE	10/12/56	C.F. DOUGHERTY	8	52	92	100	DOM;	
12S/02E-25T56	PRUNEDALE	8/10/79	FREEDOM GEN REPAIR & PUMP	6	275	295	295	DOM;	
12S/02E-25T57	PRUNEDALE	3/31/71	CLIFFORD PUMP & WELL	8	76	116	120	DOM	
12S/02E-25T58	PRUNEDALE	2/28/63	C.F. DOUGHERTY	8	52	92	100	DOM;	
12S/02E-25T59	PRUNEDALE	9/18/52	C.F. DOUGHERTY	12	135	173	180	DOM;	
12S/02E-25T60	PRUNEDALE	3/6/78	C.F. DOUGHERTY	12	210	290	300	IRR;	
12S/02E-25T61	PRUNEDALE	3/30/62	C.F. DOUGHERTY	8	172	212	220	DOM;	
12S/02E-25T62	PRUNEDALE	9/12/53	C.F. DOUGHERTY	8	248	280	288	DOM;	
12S/02E-25T63	PRUNEDALE	6/11/76	C.F. DOUGHERTY	8	205	297	305	DOM;	
12S/02E-25T64	PRUNEDALE	3/25/65	C.F. DOUGHERTY	8	90	136	140	DOM;	
12S/02E-25T65	PRUNEDALE	8/24/51	C.F. DOUGHERTY	8	33	63	72	DOM;	
12S/02E-25T66	PRUNEDALE	11/28/67	C.F. DOUGHERTY	8	140	180	188	DOM;	
12S/02E-25T67	PRUNEDALE	9/30/72	ASH & SONS	7	285	321	330	DOM;	
12S/02E-25T68	PRUNEDALE	7/26/70	C.F. DOUGHERTY	8	100	140	148	DOM;	
12S/02E-25T69	PRUNEDALE	1/21/54	C.F. DOUGHERTY	12	42	94	100	IRR;	
12S/02E-25T70	PRUNEDALE	6/3/65	C.F. DOUGHERTY	8	97	117	125	DOM;	
12S/02E-25T71	PRUNEDALE	5/23/69	FREEDOM GEN REPAIR & PUMP	6	106	138	138	DOM;	
12S/02E-25T72	PRUNEDALE	11/11/63	C.F. DOUGHERTY	8	249	293	297	DOM;	
12S/02E-25T73	PRUNEDALE	2/6/79	FREEDOM GEN REPAIR & PUMP	6	80	100	100	DOM;	
12S/02E-25T74	PRUNEDALE	12/17/71	C.F. DOUGHERTY	8	141	181	189	DOM;	
12S/02E-25T75	PRUNEDALE	2/10/79	FREEDOM GEN REPAIR & PUMP	6	80	100	100	DOM;	
12S/02E-25T76	PRUNEDALE	3/26/58	C.F. DOUGHERTY	8	140	180	188	DOM;	
12S/02E-25T77	PRUNEDALE	5/19/53	C.F. DOUGHERTY	8	75	126	135	DOM;	
12S/02E-25T78	PRUNEDALE	12/8/65	C.F. DOUGHERTY	8	84	124	132	DOM;	
12S/02E-25T79	PRUNEDALE	11/10/73	ASH & SONS	7	128	156	160	DOM;	
12S/02E-25T80	PRUNEDALE	3/10/77	ASH & SONS	6	348	380	380	DOM;	
12S/02E-25T81	PRUNEDALE	7/8/66	C.F. DOUGHERTY	14	280	340	356	IRR;	
12S/02E-25T82	PRUNEDALE	1/11/77	C.F. DOUGHERTY	12	240	310	320	DOM;IRR;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/02E-25T83	PRUNEDALE	2/17/80	ROBINETT & SONS	8	145	345	345	IRR;	
12S/02E-26A01	PRUNEDALE	3/26/58	C.F. DOUGHERTY	8	140	180	188	DOM;	
12S/02E-26A50	PRUNEDALE	5/29/86	C.F. DOUGHERTY	10	220	360	380	IRR;	
12S/02E-26A51	HALL DISTRICT	8/31/81	C.F. DOUGHERTY	8	324	372	380	IRR;	
12S/02E-26A52	PRUNEDALE	9/13/91	LANDINO	5	340	420	422	DOM	
12S/02E-26C01	HALL DISTRICT	3/16/65						IRR;	
12S/02E-26C50	PRUNEDALE	5/17/52	NUNES	10	229	279	288		
12S/02E-26D50	PRUNEDALE	11/21/56	C.F. DOUGHERTY	8	52	92	100	DOM;	
12S/02E-26D51	PRUNEDALE	5/20/72	C.F. DOUGHERTY	8	116	156	164	DOM;	
12S/02E-26D52	PRUNEDALE	9/24/77	C.F. DOUGHERTY	8	104	144	152	DOM;	
12S/02E-26F01	PRUNEDALE	3/16/65							
12S/02E-26G50	PAJARO-SPRINGFIELD	12/14/88	ASH & SONS	8	380	640	660	IRR;	
12S/02E-26G51									
12S/02E-26H50	HALL DISTRICT	12/19/80	C.F. DOUGHERTY	12	268	328	338	IRR;	
12S/02E-26J01	HALL DISTRICT								
12S/02E-26K50	HALL DISTRICT	5/11/90	C.F. DOUGHERTY	6	320	380	380	DOM;	
12S/02E-26Q50	PRUNEDALE	3/30/91	DOUGHERTY PUMP & DRILLING	8	405	635	635	IRR	
12S/02E-26T50	PRUNEDALE	10/11/70	ASH & SONS	7	346	394	428	DOM;	
12S/02E-26T51	PRUNEDALE	2/2/68	C.F. DOUGHERTY	10	84	124	132	DOM;	
12S/02E-26T52	PRUNEDALE	12/28/61	C.F. DOUGHERTY	8	72	112	120	DOM;	
12S/02E-26T53	PRUNEDALE	8/16/62	C.F. DOUGHERTY	8	44	84	92	DOM;	
12S/02E-26T54	PRUNEDALE	8/14/62	C.F. DOUGHERTY	8	48	88	96	DOM;	
12S/02E-26T55	PRUNEDALE	11/5/54	SANTA ROSA DRILLING	14	70	130	280		
12S/02E-26T56	PRUNEDALE	8/4/71	C.F. DOUGHERTY	10	52	112	120	DOM;	
12S/02E-26T57	PRUNEDALE	9/17/71	CLIFFORD PUMP & WELL	8	78	118	118	DOM	
12S/02E-26T58	PRUNEDALE	7/18/66	C.F. DOUGHERTY	8	152	192	200	DOM;	
12S/02E-26T59	PRUNEDALE	12/4/65	MURPHY	12	156	216	224	IRR;	
12S/02E-26T60	PRUNEDALE	4/16/56	C.F. DOUGHERTY	12	80	140	148	IRR;	
12S/02E-26T61	PRUNEDALE	6/30/75	C.F. DOUGHERTY	8	112	152	160	DOM;	
12S/02E-26T62	PRUNEDALE	3/11/71	C.F. DOUGHERTY	7	312	352	360	DOM;	
12S/02E-26T63	PRUNEDALE	8/8/75	MAGGIORA BROS	18	120	160	180	DOM;	
12S/02E-26T64	PAJARO-SPRINGFIELD	10/13/87	MAGGIORA BROS	16	236	416	436	DOM	
12S/02E-27A01	PRUNEDALE	11/21/56	C.F. DOUGHERTY	8	52	92	100	DOM;	
12S/02E-27A50	PRUNEDALE		ROBINETT & SONS	6	105	205	205	DOM;	
12S/02E-27B50	PAJARO-SPRINGFIELD	6/17/91	MAGGIORA BROS	16	250	360	480	PUBLIC	
12S/02E-27C50	PAJARO-SPRINGFIELD							DOM	
12S/02E-27G50	PRUNEDALE	6/6/72	FREEDOM GEN REPAIR & PUMP	8	45	77	77	DOM;	
12S/02E-27L01	PRUNEDALE	5/1/60	DUER		110	150	150	DOM;	DES;
12S/02E-27L50	PRUNEDALE	9/11/70	MAGGIORA BROS	10	28	40	40	DOM;	
12S/02E-27L51	PAJARO-SPRINGFIELD	6/5/90	C.F. DOUGHERTY	5	120	180	180	DOM;	
12S/02E-27T50	PRUNEDALE	7/19/62	C.F. DOUGHERTY	8	80	120	126	DOM;	
12S/02E-27T51	PRUNEDALE	6/14/60	C.F. DOUGHERTY	10	104	164	175	DOM;	
12S/02E-27T52	PRUNEDALE	10/13/70	C.F. DOUGHERTY	12	350	430	440	MUN;	
12S/02E-27T53	PRUNEDALE	3/5/76	CLIFFORD PUMP & WELL	8	42	74	106	IRR	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/02E-27T54	PRUNEDALE	8/4/54	C.F. DOUGHERTY	7	166	198	202	DOM;	
12S/02E-27T55	PRUNEDALE	12/3/68	FREEDOM GEN REPAIR & PUMP	12	98	158	203	IRR;	
12S/02E-27T56	PRUNEDALE	1/24/79	C.F. DOUGHERTY	12	126	166	176	IRR;	
12S/02E-27T57	PRUNEDALE	10/7/53	C.F. DOUGHERTY	8	76	116	124	DOM;	
12S/02E-27T58	PRUNEDALE	4/15/80	MAGGIORA BROS	26	390	580	620	IRR;	
12S/02E-28A50	HALL DISTRICT	10/8/79	FREEDOM GEN REPAIR & PUMP	6	86	106	106	DOM;	
12S/02E-28A51	HALL DISTRICT	1/31/91	ASH & SONS	6	180	220	230	DOM;	
12S/02E-28A52	HALL DISTRICT	1/30/91	ASH & SONS				40		DES
12S/02E-28B01	PAJARO-SPRINGFIELD	12/8/49	C.F. DOUGHERTY	8	165	186	195	DOM;	
12S/02E-28B50	PAJARO-SPRINGFIELD	5/4/85	ROBINETT & SONS	6	120	200	200	IRR;	
12S/02E-28B51	PAJARO-SPRINGFIELD	9/11/85	LANDINO	6	90	170	170	DOM;	
12S/02E-28B52	PAJARO-SPRINGFIELD	10/27/70	FREEDOM GEN REPAIR & PUMP	8	73	93	97	DOM;	
12S/02E-28G01	PRUNEDALE	9/14/77	MAGGIORA BROS	6	95	115	125	DOM;	
12S/02E-28G50	PAJARO-SPRINGFIELD	5/4/88	ASH & SONS	5	140	180	185	DOM;	
12S/02E-28G51	PAJARO-SPRINGFIELD	12/20/77	MAGGIORA BROS	16	136	170	250	IRR;	
12S/02E-28G52	PAJARO-SPRINGFIELD	7/29/72	ASH & SONS	6	40	56	60	DOM;	
12S/02E-28R01	PRUNEDALE						160	DOM;	
12S/02E-28T50	PAJARO-SPRINGFIELD	7/10/50	C.F. DOUGHERTY	10	30	51	60	DOM;	
12S/02E-28T51	PRUNEDALE	6/14/77	ROBINETT & SONS	10	125	225	225	IRR;	
12S/02E-28T52	PAJARO-SPRINGFIELD	2/18/72	FREEDOM GEN REPAIR & PUMP	8	73	89	89	DOM;	
12S/02E-29A01	PAJARO-SPRINGFIELD	11/12/46	ALEXANDER	12	158	200	200	IRR;	DES
12S/02E-29B01	PAJARO-SPRINGFIELD	12/8/49	C.F. DOUGHERTY	8	165	186	195		
12S/02E-29C02	PAJARO-SPRINGFIELD							DOM;	
12S/02E-29C50	PAJARO-SPRINGFIELD	5/6/82	MAGGIORA BROS	16	250	370	400	IRR;	
12S/02E-29D50	PAJARO-SPRINGFIELD	4/3/93	DOUGHERTY PUMP & DRILLING	12	340	520	520	IRR;	
12S/02E-29E01	PAJARO-SPRINGFIELD	8/1/49	FREEDOM GEN REPAIR & PUMP	12	200	290	310	IRR;	
12S/02E-29E02	PAJARO-SPRINGFIELD							IRR;	
12S/02E-29F50	PAJARO-SPRINGFIELD	8/10/84	MAGGIORA BROS	16	250	410	450	IRR;	
12S/02E-29H50	PAJARO-SPRINGFIELD	6/10/82	MAGGIORA BROS	12	260	360	395	IRR;	
12S/02E-29J03	PAJARO-SPRINGFIELD	8/5/76						DOM;	
12S/02E-29K50	PAJARO-SPRINGFIELD	5/14/81	MAGGIORA BROS	16	250	400	430	IRR;	
12S/02E-29L01	PAJARO-SPRINGFIELD	1/1/50	MEYER		300	375	375	IRR;	DES;
12S/02E-29L02	PAJARO-SPRINGFIELD	11/6/51	FREEDOM GEN REPAIR & PUMP	12	246	396	397	IRR;	
12S/02E-29N01	PAJARO-SPRINGFIELD							IRR;	
12S/02E-29N50	PAJARO-SPRINGFIELD	2/17/33		16			3125		
12S/02E-29P01	PAJARO-SPRINGFIELD	11/6/51	DUER	12	246	396	397	IRR;	
12S/02E-29R01	PAJARO-SPRINGFIELD	6/5/57	DUER		170	250	250	IRR;	
12S/02E-29R50	PAJARO-SPRINGFIELD	5/3/84	MAGGIORA BROS	16	220	400	440	DOM;	
12S/02E-29T51	PAJARO-SPRINGFIELD	11/6/51	FREEDOM GEN REPAIR & PUMP	12	246	396	397	IND;IRR;	
12S/02E-30D01	PAJARO-SPRINGFIELD	9/28/66		3				DOM;	
12S/02E-30E01	PAJARO-SPRINGFIELD	4/1/34	DUER	12	300	360	360	IRR;	DES;
12S/02E-30E03	PAJARO-SPRINGFIELD			12					ABAN;
12S/02E-30E50	PAJARO-SPRINGFIELD		DUER	8			139	DOM;	
12S/02E-30E51	PAJARO-SPRINGFIELD	8/7/92	DOUGHERTY PUMP & DRILLING	12	520	600	600	IRR	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/02E-30F01	PAJARO-SPRINGFIELD		DUER				335		
12S/02E-30F03	PAJARO-SPRINGFIELD	7/23/64					400	IRR;	
12S/02E-30L50	PAJARO-SPRINGFIELD	3/10/87	LANDINO	6	120	180	192	DOM;	
12S/02E-30M01	PAJARO-SPRINGFIELD	1/1/48	DUER	12			160		
12S/02E-30M02	PAJARO-SPRINGFIELD	1/1/49	CALFUS	12	255	275	400	IRR;	
12S/02E-30M03	PAJARO-SPRINGFIELD	1/1/64		8			107		
12S/02E-30M04	PAJARO-SPRINGFIELD	1/1/65		10			368	IRR;	
12S/02E-30M05	PAJARO-SPRINGFIELD	4/1/66	EDGEBURG	8	345	380	380	DOM;	
12S/02E-30M50	PAJARO-SPRINGFIELD	8/5/74	MAGGIORA BROS	16	340	540	580	IRR;	
12S/02E-30M51	PAJARO-SPRINGFIELD	1/1/48	DUER	12			220		
12S/02E-30M52	PAJARO-SPRINGFIELD	2/10/84	MAGGIORA BROS	7	500	560	580	DOM;	
12S/02E-30M53	PAJARO-SPRINGFIELD	5/6/74	MAGGIORA BROS	16	340	360	360	IRR;	
12S/02E-30N01	PAJARO-SPRINGFIELD	1/1/46	WESTERN PUMP	12	140	180	180	IRR;	
12S/02E-30N02	PAJARO-SPRINGFIELD	6/29/66		12				IRR;	
12S/02E-30N03	PAJARO-SPRINGFIELD	6/30/66		14				DOM;	
12S/02E-30P01	PAJARO-SPRINGFIELD	10/1/46	ALEXANDER	12	110	150	150	IRR;	ABAN;
12S/02E-30P02	PAJARO-SPRINGFIELD	6/28/66		12			250	IRR;	
12S/02E-30P03	PAJARO-SPRINGFIELD	10/1/46	ALEXANDER	12			119		
12S/02E-30P50	PAJARO-SPRINGFIELD	8/7/85	ROMAN WELL DRILLING	5	140	160	190	DOM;	
12S/02E-30P51	PAJARO-SPRINGFIELD	2/18/77	MAGGIORA BROS	16	230	230	280	IRR;	
12S/02E-30P52	PRUNEDALE	7/19/91	ASH & SONS	5	320	360	360	DOM	
12S/02E-30Q50	PAJARO-SPRINGFIELD	5/27/77	C.F. DOUGHERTY	8	328	400	408	DOM;	
12S/02E-30R02	PAJARO-SPRINGFIELD								
12S/02E-30R50	PAJARO-SPRINGFIELD	2/12/69	FREEDOM GEN REPAIR & PUMP	12	87	141	145	IRR;	
12S/02E-30R51	PAJARO-SPRINGFIELD	7/19/69	FREEDOM GEN REPAIR & PUMP				145		
12S/02E-30R52	PAJARO-SPRINGFIELD	8/18/89	ASH & SONS	8	350	490	505	DOM;	
12S/02E-30R53	PAJARO-SPRINGFIELD	7/23/69	FREEDOM GEN REPAIR & PUMP	10	326	366	366	IRR;	
12S/02E-30T50	PAJARO-SPRINGFIELD	12/1/80	FREEDOM GEN REPAIR & PUMP	12	324	344	360	IRR;	
12S/02E-30T51	PAJARO-SPRINGFIELD	4/1/48		12			220		
12S/02E-30T52	PAJARO-SPRINGFIELD	11/26/74	SALINAS PUMP CO	8	460	580	830	IRR;	
12S/02E-30T53	PAJARO-SPRINGFIELD	2/3/78	CLIFFORD PUMP & WELL				302		
12S/02E-30T54	PAJARO-SPRINGFIELD	4/2/85	LANDINO	5	100	198	203	DOM;	
12S/02E-30T55	PAJARO-SPRINGFIELD	6/30/73	SALINAS PUMP CO	12	256	408	420	IRR;	
12S/02E-31A01	PAJARO-SPRINGFIELD	5/6/57	DUER		200	250	250	IRR;	ABAN;
12S/02E-31A02	PAJARO-SPRINGFIELD	11/3/78	MAGGIORA BROS	8	260	300	355	IRR;	
12S/02E-31B01	PAJARO-SPRINGFIELD	1/1/47	WESTERN DRILLING				316	IRR;	
12S/02E-31B50	PAJARO-SPRINGFIELD	5/14/64	SALINAS PUMP CO	12	120	264	321	IRR;	
12S/02E-31C01	PAJARO-SPRINGFIELD	3/1/47					316	IRR;	ABAN;
12S/02E-31C02	PAJARO-SPRINGFIELD							IRR;	ABAN;
12S/02E-31C03	PAJARO-SPRINGFIELD	6/28/66	DUER	12			170	IRR;	DES;
12S/02E-31C04	PAJARO-SPRINGFIELD	8/25/71						IRR;	
12S/02E-31C05	PAJARO-SPRINGFIELD	7/30/77	CLIFFORD PUMP & WELL	16	200	300	339	IRR	
12S/02E-31C50	PAJARO-SPRINGFIELD	4/30/58	C & N PUMP & WELL CO				355	TEST WELL	
12S/02E-31C51	PAJARO-SPRINGFIELD	5/26/58	C & N PUMP & WELL CO	12			356	IRR	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/02E-31D01	PAJARO-SPRINGFIELD	1/1/55		12			100	IRR;	
12S/02E-31E01	PAJARO-SPRINGFIELD							IRR;	
12S/02E-31E50	PAJARO-SPRINGFIELD	5/14/64	SALINAS PUMP CO	6	60	100	100	DOM;	
12S/02E-31K01	PAJARO-SPRINGFIELD	5/13/44	ALEXANDER	12	164	219	219	IRR;	
12S/02E-31M50	PAJARO-SPRINGFIELD	7/3/77	CLIFFORD PUMP & WELL	16	200	300	339	IRR	
12S/02E-31P01	PAJARO-SPRINGFIELD	4/26/84						IRR;	
12S/02E-31Q01	PAJARO-SPRINGFIELD	3/5/76					135		
12S/02E-31T50	PAJARO-SPRINGFIELD	4/29/60	C.F. DOUGHERTY	8	116	156	164	DOM;	
12S/02E-31T51	PAJARO-SPRINGFIELD	3/11/74	MAGGIORA BROS	20	180	410	415	IRR;	
12S/02E-31T52	PAJARO-SPRINGFIELD	9/14/63	C.F. DOUGHERTY	8	100	140	148	DOM;	
12S/02E-31T53	PAJARO-SPRINGFIELD	8/18/80	ASH & SONS	5	70	100	110	DOM;	
12S/02E-31T54	PRUNEDALE	2/24/63	SALINAS PUMP CO	12	72	144	264	IRR;	
12S/02E-31T55	PAJARO-SPRINGFIELD	5/28/74	SALINAS PUMP CO	10	356	356	376	DOM;IRR;	
12S/02E-31T56	PAJARO-SPRINGFIELD	5/21/70	FREEDOM GEN REPAIR & PUMP	12	368	418	418	IRR;	
12S/02E-31T57	PAJARO-SPRINGFIELD	7/19/54	SALINAS PUMP CO				450	IRR;	
12S/02E-31T58	PAJARO-SPRINGFIELD	7/27/54	SALINAS PUMP CO	12	234	450	450	IRR;	
12S/02E-31T59	PAJARO-SPRINGFIELD	8/1/73	MAGGIORA BROS	12	260	374	400	DOM;	
12S/02E-32B01	PAJARO-SPRINGFIELD		FREEDOM GEN REPAIR & PUMP	12	136	354	354	IRR;	
12S/02E-32C01	PAJARO-SPRINGFIELD	5/6/57	DUER		100	342	342	IRR;	
12S/02E-32F01	PAJARO-SPRINGFIELD							IRR;	
12S/02E-32H01	PAJARO-SPRINGFIELD	3/14/64	VALLEY PUMP	12	253	603	603	IRR;	
12S/02E-32J01	PAJARO-SPRINGFIELD		VALLEY PUMP					IRR;	
12S/02E-32K01	PAJARO-SPRINGFIELD	1/1/48		12			356	IRR;	
12S/02E-32N01	PAJARO-SPRINGFIELD	5/6/57	DUER	14	222	372	372	IRR;	ABAN;
12S/02E-32T50	PAJARO-SPRINGFIELD	8/23/73	SALINAS PUMP CO	12	200	602	666	IRR;	
12S/02E-32T51	PAJARO-SPRINGFIELD	11/30/74	MAGGIORA BROS	20	178	315	355	IRR;	
12S/02E-32T52	PAJARO-SPRINGFIELD			14	222	372	372	IRR;	
12S/02E-32T53	PAJARO-SPRINGFIELD	12/30/66	C.F. DOUGHERTY	12			120	DOM;	
12S/02E-33A50	PRUNEDALE	10/11/73	C.F. DOUGHERTY	8	112	152	160	DOM;	
12S/02E-33B01	PRUNEDALE						100	DOM;	
12S/02E-33H01	PRUNEDALE							IRR;	
12S/02E-33N50	PAJARO-SPRINGFIELD	6/5/89	ASH & SONS	5	260	300	310	DOM;	
12S/02E-33N51	PAJARO-SPRINGFIELD	2/11/82	MAGGIORA BROS	16	250	440	480	IRR;	
12S/02E-33T50	PRUNEDALE	6/1/76	C.F. DOUGHERTY	12	274	334	344	IRR;	
12S/02E-33T51	PRUNEDALE	5/13/75	C.F. DOUGHERTY	10	116	156	164	IRR;	
12S/02E-33T52	PRUNEDALE	8/22/74	C.F. DOUGHERTY	12	156	196	208	IRR;	
12S/02E-33T53	PRUNEDALE	6/27/72	C.F. DOUGHERTY	8	104	144	152	DOM;	
12S/02E-33T54	PRUNEDALE	6/10/49	NUNES		130	175	201	DOM;	
12S/02E-33T55	PAJARO-SPRINGFIELD	6/12/78	CLIFFORD PUMP & WELL	12	140	210	422	IRR	
12S/02E-34G50	PRUNEDALE	4/16/71	C.F. DOUGHERTY	10	175	239	247	IRR;	
12S/02E-34G51	PRUNEDALE	11/10/77	MAGGIORA BROS	26	200	400	415	IRR;	
12S/02E-34L50	PRUNEDALE	11/7/84	ASH & SONS	6	140	180	185	DOM;	
12S/02E-34L51	PRUNEDALE	9/19/57					1917	OIL	
12S/02E-34L52	PRUNEDALE	6/18/84	C.F. DOUGHERTY	14			566	IRR;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/02E-34P50	PRUNEDALE	12/4/82	MAGGIORA BROS	6	140	190	220	DOM;	
12S/02E-34Q01	PRUNEDALE	1/27/71	C.F. DOUGHERTY	8	76	124	132	DOM;	
12S/02E-34T50	PRUNEDALE	4/16/66	FREEDOM GEN REPAIR & PUMP	12	92	168	168	IRR;	
12S/02E-35P01	PRUNEDALE	6/14/75	ASH & SONS	66	280	312	312	DOM;	
12S/02E-35P02	PRUNEDALE			8			350	DOM;	
12S/02E-35Q01	PRUNEDALE	7/29/72	ASH & SONS	66	240	276	276	DOM;	
12S/02E-35Q50	PRUNEDALE	4/15/85	ASH & SONS	6	315	395	480	DOM;	
12S/02E-35Q51	PRUNEDALE	10/10/90	ASH & SONS	6	370	410	420	DOM;	
12S/02E-35Q52	PAJARO-SPRINGFIELD	10/6/61	ASH & SONS	8	340	420	445	DOM;IRR;	
12S/02E-35T50	PRUNEDALE	9/25/79	MAGGIORA BROS	12	270	310	455	DOM;	
12S/02E-35T51	PRUNEDALE	1/16/76	ASH & SONS	12	420	440	445	DOM;	
12S/02E-35T52	PRUNEDALE	8/8/75	ASH & SONS	7	220	252	270	DOM;	
12S/02E-36A50	PRUNEDALE	1/14/77	C.F. DOUGHERTY	12	322	382	392	IRR;	
12S/02E-36C01	PAJARO-SPRINGFIELD								
12S/02E-36D50	PRUNEDALE	4/17/79	C.F. DOUGHERTY	10	216	276	284	DOM;	
12S/02E-36D51	HALL DISTRICT	11/6/90	ASH & SONS	5	380	420	430	DOM;	
12S/02E-36D52	HALL DISTRICT	11/15/90	ASH & SONS						DES
12S/02E-36D53	PRUNEDALE	7/13/79	AMERICAN HOME	6	180	250	250	DOM;	
12S/02E-36E01	PRUNEDALE							DOM;	
12S/02E-36E50	PAJARO-SPRINGFIELD	7/14/89	C.F. DOUGHERTY	5	252	292	292	DOM;	
12S/02E-36E51	PRUNEDALE	9/9/83	C.F. DOUGHERTY	8	224	264	272	DOM;	
12S/02E-36E52	PRUNEDALE	4/9/86	ASH & SONS	6	260	300	320	IRR;	
12S/02E-36E53	HALL DISTRICT	6/29/78	CLIFFORD PUMP & WELL	5	265	285	310	DOM	
12S/02E-36L01	PRUNEDALE	1/1/58	JARSCHKE	6	35	50	55	DOM;	
12S/02E-36L50	HALL DISTRICT	7/19/90	C.F. DOUGHERTY	5	280	320	330	DOM;	
12S/02E-36L51	PRUNEDALE	11/23/73	CLIFFORD PUMP & WELL	12	250	300	300	DOM	
12S/02E-36M50	PRUNEDALE	9/24/83	ASH & SONS	5	490	550	550	DOM;	
12S/02E-36M51	PRUNEDALE	3/4/88	ASH & SONS	5	400	460	465	DOM;	
12S/02E-36M52	PRUNEDALE	3/4/88	ASH & SONS	5	400	460	465	DOM;	
12S/02E-36M53	PRUNEDALE	9/30/92	MAGGIORA BROS	6	5	50	138		
12S/02E-36M54	PRUNEDALE	1/29/91	DOUGHERTY PUMP & DRILLING	5	240	280	280	DOM	
12S/02E-36P03	PRUNEDALE							IRR;	
12S/02E-36P50	HALL DISTRICT	2/22/91	C.F. DOUGHERTY	5	280	320	340	DOM;	
12S/02E-36T50	PRUNEDALE	5/13/55	C.F. DOUGHERTY	12	56	96	100	DOM;	
12S/02E-36T51	PRUNEDALE	2/6/82	MAGGIORA BROS	5	230	330	365	DOM;	
12S/02E-36T52	PRUNEDALE	6/14/67	FREEDOM GEN REPAIR & PUMP	8	95	127	127	DOM;	
12S/02E-36T53	PRUNEDALE	7/31/62	C.F. DOUGHERTY	8	296	336	344	DOM;	
12S/02E-36T54	PRUNEDALE	8/22/59	C.F. DOUGHERTY	8	52	92	100	DOM;	
12S/02E-36T55	PRUNEDALE	6/13/61	C.F. DOUGHERTY	8	80	120	128	DOM	
12S/02E-36T56	PRUNEDALE	1/28/78	FREEDOM GEN REPAIR & PUMP	8	216	248	252	DOM;	
12S/02E-36T57	PRUNEDALE	12/3/54	C.F. DOUGHERTY	10	64	116	124	DOM;IRR;	
12S/02E-36T58	PRUNEDALE	10/14/65	C.F. DOUGHERTY	12	84	124	132	DOM;	
12S/02E-36T59	PRUNEDALE	4/15/55	C.F. DOUGHERTY	8	164	196	204	DOM;	
12S/02E-36T60	PRUNEDALE	3/1/72	ASH & SONS	6	120	156	170	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/02E-36T61	PRUNEDALE	3/17/56	C.F. DOUGHERTY	8	152	192	200	DOM;	
12S/02E-36T62	PRUNEDALE	10/4/61	C.F. DOUGHERTY	8	68	108	116	DOM;	
12S/02E-36T63	PRUNEDALE	8/12/59	ASH & SONS	8		350	504	DOM;	
12S/02E-36T64	PRUNEDALE	8/10/72	ASH & SONS	6	340	376	376	DOM;	
12S/02E-36T65	PRUNEDALE	3/10/66	C.F. DOUGHERTY	10	116	196	204	DOM;	
12S/02E-36T66	PRUNEDALE	8/2/57	C.F. DOUGHERTY	12			116	DOM;	
12S/02E-36T67	PRUNEDALE	5/16/68	C.F. DOUGHERTY	12	290	370	380	IRR;	
12S/02E-36T68	PRUNEDALE	10/14/61	MURPHY	10	66	96	100	DOM;	
12S/02E-36T69	PRUNEDALE	5/5/66	C.F. DOUGHERTY	8	188	288	236	DOM;	
12S/02E-36T70	PRUNEDALE	5/9/66	C.F. DOUGHERTY	8	56	96	104	DOM;	
12S/02E-36T71	PRUNEDALE	6/25/83	ROBINETT & SONS	8	200	325	325	DOM;	
12S/02E-80T50	PRUNEDALE	8/11/71	C.F. DOUGHERTY	8	100	140	148	DOM;	
12S/02E-80T51	PAJARO-SPRINGFIELD	4/27/53	C.F. DOUGHERTY	12	432	482	490	IRR;	
12S/03E-05E50	PRUNEDALE	3/30/89	ASH & SONS	6	420	460	480	DOM;	
12S/03E-07C01	PAJARO-SPRINGFIELD	4/1/47	LITCHFIELD		110	142	160		
12S/03E-07F01	PAJARO-SPRINGFIELD	1/1/45	DUER	16	77	87	150		
12S/03E-07J01	PAJARO-SPRINGFIELD	9/1/31	LITCHFIELD				158		
12S/03E-07J02	PAJARO-SPRINGFIELD	2/1/47	DUER	14	105	197	200	IRR;	
12S/03E-07K01	PAJARO-SPRINGFIELD	1/1/34	LITCHFIELD		110	160	162		
12S/03E-07T50	PAJARO-SPRINGFIELD	10/26/72	CHAPPELL PUMP & SUPPLY	12	160	290	310	IRR	
12S/03E-07T51	PAJARO-SPRINGFIELD	6/2/77	CLIFFORD PUMP & WELL	6	140	160	165	DOM	
12S/03E-07T52	PRUNEDALE	3/24/75	CHAPPELL PUMP & SUPPLY	16	142	160	220	IRR	
12S/03E-07T53	PAJARO-SPRINGFIELD	5/21/69	PIONEER	14	95	360	422	IRR;	
12S/03E-08C01	PAJARO-SPRINGFIELD	7/1/47					230	IRR;	DES
12S/03E-08C02	PAJARO-SPRINGFIELD	5/11/84	MAGGIORA BROS	16	80	180	190	IRR	
12S/03E-08C50	PAJARO-SPRINGFIELD	5/11/84	MAGGIORA BROS	16	80	180	195	IRR;	
12S/03E-08G50	PAJARO-SPRINGFIELD	12/12/86	C.F. DOUGHERTY	6	143	203	210	DOM;	
12S/03E-08H01	PAJARO-SPRINGFIELD	12/12/80	FREEDOM GEN REPAIR & PUMP	8	286	307	315	DOM;	DES;
12S/03E-08H50	PAJARO-SPRINGFIELD	2/12/87	ASH & SONS	5	300	340	344	DOM;	
12S/03E-08M01	PAJARO-SPRINGFIELD	2/11/59						IRR;	
12S/03E-08N50	PAJARO-SPRINGFIELD	8/5/55	C.F. DOUGHERTY	8	85	128	136	DOM;	
12S/03E-08T50	PAJARO-SPRINGFIELD	12/7/79	FREEDOM GEN REPAIR & PUMP	6	330	350	356	DOM;	
12S/03E-08T51	AROMAS	9/2/80	C.F. DOUGHERTY	8	132	172	180	DOM;	
12S/03E-08T52	PAJARO-SPRINGFIELD	11/11/78	CLIFFORD PUMP & WELL	6	130	150	167	DOM/IRR	
12S/03E-08T53	PRUNEDALE	3/23/79	MAGGIORA BROS	16	300	410	445	IND;	
12S/03E-09C01	PAJARO-SPRINGFIELD		LITCHFIELD		102	105	150		
12S/03E-09D01	PAJARO-SPRINGFIELD			12			250	DOM;	
12S/03E-09D02	PAJARO-SPRINGFIELD		RESETAR BROS	12	302	456	481	DOM;	
12S/03E-09Q01	PAJARO-SPRINGFIELD						100		
12S/03E-10N02	PAJARO-SPRINGFIELD	1/1/45	COKER & BROGAN				562		
12S/03E-12M50	PAJARO-SPRINGFIELD	3/21/83	ASH & SONS	6	170	210	220	DOM;	
12S/03E-13T50	PAJARO-SPRINGFIELD	10/23/64	SALINAS PUMP CO	10	200	300	300	IRR;	
12S/03E-15T50	AROMAS	10/9/57	C.F. DOUGHERTY	8	228	268	290	DOM;	
12S/03E-16B50	AROMAS	4/8/66	FREEDOM GEN REPAIR & PUMP	14	82	490	502	IND;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/03E-16C01	PAJARO-SPRINGFIELD	4/1/47	PIERCE & SON	12	25	100	220		
12S/03E-16C02	PAJARO-SPRINGFIELD	5/15/65	VALLEY PUMP	12	300	372	385	IRR;	ABAN;
12S/03E-16C50	PRUNEDALE	5/15/65	FREEDOM GEN REPAIR & PUMP	12	300	372	385	IRR;	
12S/03E-16E50	PRUNEDALE	7/12/84	MELVILLE & SON	6	480	540	564	DOM;	
12S/03E-16E51	AROMAS	8/31/81	MAGGIORA BROS	6	205	235	350	DOM;	
12S/03E-16E52	PAJARO-SPRINGFIELD	5/12/82	MAGGIORA BROS	16	190	320	355	IRR;	
12S/03E-16F01	PRUNEDALE	2/10/59		12				IRR;	ABAN;
12S/03E-16F02	PAJARO-SPRINGFIELD			12				IRR;	DES;
12S/03E-16G50	PRUNEDALE	8/6/84	MELVILLE & SON	14	90	390	500	IRR;	
12S/03E-16K50	AROMAS	12/10/50	C.F. DOUGHERTY	8	48	69	78	DOM;	
12S/03E-16L50	AROMAS	3/10/52	MURPHY	14	170	230	236		
12S/03E-16L51	AROMAS	6/11/69	C.F. DOUGHERTY	8	192	232	240	DOM;	
12S/03E-16L52	AROMAS	8/9/75	FREEDOM GEN REPAIR & PUMP	8	116	136	140	DOM;	
12S/03E-16T50	AROMAS	6/22/65	C.F. DOUGHERTY	8	212	252	252	DOM;	
12S/03E-16T51	PRUNEDALE	5/1/53							
12S/03E-16T52	AROMAS	9/6/69	MAGGIORA BROS	30	18	58	58	DOM;	
12S/03E-16T53	AROMAS	8/26/72	ASH & SONS	7	80	106	120	DOM;	
12S/03E-16T54	AROMAS	7/7/78	MAGGIORA BROS	12	230	270	280	DOM;	
12S/03E-16T55	AROMAS	1/29/64	C.F. DOUGHERTY	10	16	48	56	DOM;	
12S/03E-16T56	AROMAS	10/24/69	MAGGIORA BROS	30	36	86	86	DOM;	
12S/03E-16T57	AROMAS	9/30/75	CHAPPELL PUMP & SUPPLY	13	390	220	530	IRR	
12S/03E-16T58	AROMAS	10/29/63	C.F. DOUGHERTY	14	44	174	190	DOM;	
12S/03E-16T59	AROMAS	7/1/71	C.F. DOUGHERTY	8	92	132	140	DOM;	
12S/03E-16T60	AROMAS	8/24/61	FREEDOM GEN REPAIR & PUMP	12	322	442	450	MUN;	
12S/03E-16T61	AROMAS	10/23/69	MAGGIORA BROS	30	60	90	90	DOM;	
12S/03E-16T62	AROMAS	4/6/56	FREEDOM GEN REPAIR & PUMP	14	151	535	550	IRR;	
12S/03E-16T63	AROMAS	8/7/54	FREEDOM GEN REPAIR & PUMP	12	204	276	450	IRR;	
12S/03E-17D50	PAJARO-SPRINGFIELD	3/24/77	CHAPPELL PUMP & SUPPLY	16	160	380	456	IND	
12S/03E-17E50	PAJARO-SPRINGFIELD	6/26/89	EATON	16	400	650	700	IRR;	
12S/03E-17G50	PRUNEDALE	3/30/84	MELVILLE & SON	16	300	597	637	IRR;	
12S/03E-17H50	PRUNEDALE	1/1/84	MELVILLE & SON	16	300	624	711	IRR;	
12S/03E-17J50	PRUNEDALE	1/20/89	ASH & SONS	5	370	430	440	DOM;	
12S/03E-17J51	PRUNEDALE	1/13/89	ASH & SONS	6	260	300	303	DOM;	
12S/03E-17K01	PRUNEDALE	1/1/48	PIERCE & SON	12	48	244	256		
12S/03E-17K02	PRUNEDALE	1/1/48	PIERCE & SON				500		
12S/03E-17K03	PAJARO-SPRINGFIELD	6/1/47	DUER				275		
12S/03E-17P50	PRUNEDALE	8/11/88	ASH & SONS	6	300	340	344	DOM;IRR;	
12S/03E-17Q50	AROMAS	1/18/54	C.F. DOUGHERTY	8	134	166	185	DOM;	
12S/03E-17Q51	PAJARO-SPRINGFIELD	12/1/91	CHAPPELL PUMP & SUPPLY	6	340	430	440	DOM;	
12S/03E-17Q52	AROMAS	5/14/93	ASH & SONS	6	360	400	400	DOM	
12S/03E-17T50	AROMAS	10/20/75	FREEDOM GEN REPAIR & PUMP	18	348	378	382	DOM;	
12S/03E-17T51	AROMAS	7/7/69	C.F. DOUGHERTY	8	200	300	375	DOM;	
12S/03E-17T52	AROMAS	12/30/60	C.F. DOUGHERTY	10	48	88	96	DOM;	
12S/03E-17T53	AROMAS	11/23/70	CLIFFORD PUMP & WELL	12	162	262	272	IRR	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/03E-17T54	PAJARO-SPRINGFIELD	3/11/77	CHAPPELL PUMP & SUPPLY				410		
12S/03E-17T55	AROMAS	10/11/74	FREEDOM GEN REPAIR & PUMP	8	68	100	100	DOM;	
12S/03E-17T56	AROMAS	5/8/73	C.F. DOUGHERTY	8	312	352	360	DOM;	
12S/03E-17T57	AROMAS	8/23/62	C.F. DOUGHERTY	8	152	192	200	DOM;	
12S/03E-17T58	AROMAS	8/23/79	LANDINO	5	120	420	430	DOM;	
12S/03E-17T59	AROMAS	2/20/77	ASH & SONS	6	215	247	247	DOM;	
12S/03E-17T60	AROMAS	9/15/72	CLIFFORD PUMP & WELL	9	160	200	200	DOM	
12S/03E-17T61	PAJARO-SPRINGFIELD	11/13/68	THE PUMP SHOP	10			292	DOM;	
12S/03E-17T62	PAJARO-SPRINGFIELD	8/24/78	MAGGIORA BROS	16	130	190	220	IRR;	
12S/03E-18A50	PAJARO-SPRINGFIELD	10/20/84	MAGGIORA BROS	16	140	245	275	IRR;	
12S/03E-18B50	PAJARO-SPRINGFIELD	5/1/31	LITCHFIELD				114		
12S/03E-18D01	PAJARO-SPRINGFIELD	2/1/47	LITCHFIELD	12	125	160	172	DOM;	
12S/03E-18E04	PAJARO-SPRINGFIELD	2/11/59		10				DOM;	
12S/03E-18J50	PAJARO-SPRINGFIELD	6/1/89	CHAPPELL PUMP & SUPPLY	16	400	650	670	IRR	
12S/03E-18P50	PRUNEDALE	11/11/88	C.F. DOUGHERTY	6	270	330	330	DOM;	
12S/03E-18P51	PRUNEDALE	7/5/83	C.F. DOUGHERTY	12	170	230	240	IRR;	
12S/03E-18Q01	PAJARO-SPRINGFIELD	2/11/59		12				IRR;	
12S/03E-18T50	AROMAS	12/3/61	MURPHY	10	75	117	125	DOM;	
12S/03E-18T51	AROMAS	7/16/54	WESTERN DRILLING	14	117	144	152	IRR;	
12S/03E-18T52	PRUNEDALE	8/13/64	C.F. DOUGHERTY	8	108	148	176	DOM;	
12S/03E-18T53	PAJARO-SPRINGFIELD	6/9/78	MAGGIORA BROS	26	120	370	390	IRR;	
12S/03E-18T54	PAJARO-SPRINGFIELD	9/27/79	CLIFFORD PUMP & WELL	16	105	183	255	IRR	
12S/03E-18T55	PAJARO-SPRINGFIELD	9/27/57	C.F. DOUGHERTY	10	124	164	172	DOM;	
12S/03E-19C50	PRUNEDALE	3/31/88	C.F. DOUGHERTY	5	180	240	245	DOM;	
12S/03E-19D50	PRUNEDALE	10/28/64	C.F. DOUGHERTY	8	185	236	242	DOM;	
12S/03E-19F50	PAJARO-SPRINGFIELD	9/30/93	ROBINETT & SONS	8	390	450	450	DOM	
12S/03E-19J50	PAJARO-SPRINGFIELD	9/30/91	DOUGHERTY PUMP & DRILLING	5	320	400	400	DOM	
12S/03E-19L01	PRUNEDALE		ROBINETT & SONS	8	288	328	331	DOM;	
12S/03E-19L50	PRUNEDALE	2/19/88	ASH & SONS	5	340	380	390	DOM;	
12S/03E-19M01	PRUNEDALE	1/1/48	DUER	10	100	161	161	IRR;	
12S/03E-19P50	PRUNEDALE	2/9/88	ASH & SONS	5	260	300	305	DOM;	
12S/03E-19P51	PRUNEDALE	9/18/85	ASH & SONS	6	360	400	407	DOM;	
12S/03E-19P52	PRUNEDALE	4/8/92	ASH & SONS	5	360	400	400	DOM;	
12S/03E-19R50	PRUNEDALE	12/21/77	ASH & SONS	7	233	265	265	DOM;	
12S/03E-19R51	PRUNEDALE	8/14/87	C.F. DOUGHERTY	10	260	400	408	IRR;	
12S/03E-19T50	PRUNEDALE	8/4/59	C.F. DOUGHERTY	12	110	162	172	DOM;	
12S/03E-19T51	PRUNEDALE	4/1/77	C.F. DOUGHERTY	12	178	238	248	IRR;	
12S/03E-19T52	AROMAS	10/1/75	ASH & SONS	12	180	200	210	DOM;	
12S/03E-19T53	AROMAS	11/4/75	LANDINO	6	105	190	190	DOM;	
12S/03E-19T54	PRUNEDALE		ROBINETT & SONS	8			300	DOM;	
12S/03E-19T55	AROMAS	5/25/61	C.F. DOUGHERTY	12	198	278	288	DOM;	
12S/03E-19T56	PRUNEDALE	9/9/63	C.F. DOUGHERTY	8	204	244	252	DOM;	
12S/03E-19T57	PRUNEDALE	9/4/79	CHAPPELL PUMP & SUPPLY	8	130	250	310	DOM	
12S/03E-19T58	PRUNEDALE	6/18/83	ASH & SONS	5	270	310	315	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/03E-19T59	AROMAS	5/25/61	C.F. DOUGHERTY	10	128	188	196	DOM;	
12S/03E-19T60	PRUNEDALE		ROBINETT & SONS	8	288	328	331	DOM;	
12S/03E-19T61	PRUNEDALE	8/12/63	C.F. DOUGHERTY	7	212	248	252		
12S/03E-19T62	PRUNEDALE	10/23/70	C.F. DOUGHERTY	8	172	212	220	DOM;	
12S/03E-19T63	AROMAS	9/14/76	C.F. DOUGHERTY	8	152	192	200	DOM;	
12S/03E-19T64	AROMAS	4/3/61	MURPHY	10	128	149	153	DOM;	
12S/03E-20E50	AROMAS	6/27/78	C.F. DOUGHERTY	8	288	328	336	DOM;	
12S/03E-20E51	PRUNEDALE	7/16/87	ASH & SONS	6	505	605	625	DOM;	
12S/03E-20E52	PRUNEDALE	6/24/87	ASH & SONS	6	410	470	520	DOM;	
12S/03E-20F01	PRUNEDALE	12/8/76	C.F. DOUGHERTY	8	392	436	444	DOM;	
12S/03E-20F50	PRUNEDALE	9/27/82	LANDINO		540	800	850	IRR;	
12S/03E-20F51	PRUNEDALE	2/22/83	ASH & SONS	5	360	400	408	DOM;	
12S/03E-20F52	PRUNEDALE	1/26/78	ASH & SONS	7	293	325	325	DOM;	
12S/03E-20G50	AROMAS	11/23/83	ASH & SONS	5	255	295	305	DOM;	
12S/03E-20G51	AROMAS	8/1/78	C.F. DOUGHERTY	10	322	382	392	DOM;	
12S/03E-20K01	PRUNEDALE			8	270	300	360	DOM;	
12S/03E-20K50	PRUNEDALE	10/19/88	ASH & SONS	5	260	300	303	DOM;	
12S/03E-20L50	AROMAS	3/27/69	THE PUMP SHOP	8			244	DOM;	
12S/03E-20N50	PRUNEDALE	7/5/83	MAGGIORA BROS	8	180	390	400	DOM;	
12S/03E-20N51	PRUNEDALE	7/16/87	C.F. DOUGHERTY	8	300	380	385	DOM;IRR;	
12S/03E-20T50	AROMAS	4/8/74	C.F. DOUGHERTY	8	272	312	320	DOM;	
12S/03E-20T51	AROMAS	5/14/60	C.F. DOUGHERTY	10	180	244	252	DOM	
12S/03E-20T52	AROMAS	10/15/74	ASH & SONS	6	178	260	220	DOM;	
12S/03E-20T53	AROMAS	11/12/75	ASH & SONS	7	271	303	310	DOM;	
12S/03E-20T54	AROMAS	6/30/69	C.F. DOUGHERTY	8	240	280	288	DOM;	
12S/03E-20T55	AROMAS	11/12/74	C.F. DOUGHERTY	8	68	108	116		
12S/03E-20T56	AROMAS	9/2/76	C.F. DOUGHERTY	8	304	352	360	DOM;	
12S/03E-20T58	AROMAS	12/12/74	C.F. DOUGHERTY	8	208	342	350	DOM;	
12S/03E-21B01	PAJARO-SPRINGFIELD	8/24/61	FREEDOM GEN REPAIR & PUMP	12	322	442	450	IND;	
12S/03E-21B50	AROMAS	6/6/81	MAGGIORA BROS	16	320	450	505	IRR;	
12S/03E-21F50	AROMAS	2/12/78	ASH & SONS	7	245	277	277	DOM;	
12S/03E-21L50	AROMAS	6/21/82	ASH & SONS	5	340	380	400	DOM;	
12S/03E-21L51	AROMAS	7/15/82	ASH & SONS	5	424	494	502	IRR;	
12S/03E-21L52	AROMAS	2/26/81	ASH & SONS	5	292	352	360	DOM;	
12S/03E-21P50	AROMAS	4/7/79	CLIFFORD PUMP & WELL	8	175	205	240	DOM	
12S/03E-21P51	AROMAS	7/1/82	ASH & SONS	5	300	342	350	DOM;	
12S/03E-21T50	AROMAS	3/1/30	C.F. DOUGHERTY	8	144	184	192	DOM;	
12S/03E-21T51	AROMAS	6/3/76	CLIFFORD PUMP & WELL	8	260	292	316	DOM	
12S/03E-21T52	AROMAS	4/21/67	C.F. DOUGHERTY	8	192	232	240	DOM;	
12S/03E-21T53	AROMAS	6/4/74	CHAPPELL PUMP & SUPPLY	9	168	208	228	DOM/IRR	
12S/03E-21T54	AROMAS		ROBINETT & SONS	10	120	400	405	IRR;	
12S/03E-21T55	AROMAS	10/1/73	C.F. DOUGHERTY	8	320	360	368	DOM;	
12S/03E-21T56	AROMAS	3/27/63	C.F. DOUGHERTY				590		
12S/03E-21T57	AROMAS	9/23/63	C.F. DOUGHERTY	8	172	212	220	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/03E-21T58	AROMAS	11/25/66	C.F. DOUGHERTY	8	232	272	280	DOM;	
12S/03E-21T59	AROMAS	3/29/68	C.F. DOUGHERTY	8	370	430	440	DOM;	
12S/03E-21T60	PAJARO-SPRINGFIELD	10/7/59	C.F. DOUGHERTY	12	25	80	88	DOM;	
12S/03E-22M51	PRUNEDALE	6/20/74	ASH & SONS	13	80	110	115	DOM	
12S/03E-22T50	AROMAS	11/10/65	C.F. DOUGHERTY	8	216	256	264	DOM;	
12S/03E-22T51	AROMAS	12/3/59	C.F. DOUGHERTY	10	340	580	580	IRR;	
12S/03E-22T52	AROMAS	7/30/65	C.F. DOUGHERTY	8	224	264	272	DOM;	
12S/03E-22T53	AROMAS	8/11/66	C.F. DOUGHERTY	10	104	144	152	DOM;	
12S/03E-24T50	PRUNEDALE	6/4/71	C.F. DOUGHERTY	8	104	144	152	DOM;	
12S/03E-24T51	PRUNEDALE	9/8/58	C & N PUMP & WELL CO				112		
12S/03E-25T50	PRUNEDALE	7/23/66	MAGGIORA BROS	2			54		
12S/03E-25T51	PRUNEDALE	10/29/56	C & N PUMP & WELL CO				66		
12S/03E-25T52	PRUNEDALE	12/10/54	C.F. DOUGHERTY	8	49	220	220	DOM;	
12S/03E-25T53	PRUNEDALE	9/1/73	FREEDOM GEN REPAIR & PUMP	8	33	49	48	DOM;	
12S/03E-27M50	AROMAS	3/5/69	FREEDOM GEN REPAIR & PUMP	6	170	202	204	DOM;	
12S/03E-27M51	PRUNEDALE	5/5/90	ASH & SONS	5	255	295	295	DOM;	
12S/03E-27M52	PRUNEDALE	9/19/69	FREEDOM GEN REPAIR & PUMP	6	152	184	184	DOM;	
12S/03E-27N50	PRUNEDALE	10/25/90	ASH & SONS	6	280	320	320	DOM;	
12S/03E-27N51	PRUNEDALE	2/15/91	ASH & SONS	6	272	312	312	DOM	
12S/03E-27P50	AROMAS	5/28/79	ROMAN WELL DRILLING	5	75	265	265	DOM;	
12S/03E-27P51	AROMAS	6/4/79	ROMAN WELL DRILLING	5	215	375	374	DOM;	
12S/03E-27P52	PRUNEDALE	10/7/85	ROMAN WELL DRILLING	12	134	544	550	DOM;	
12S/03E-27T50	PRUNEDALE	8/21/69	C.F. DOUGHERTY	8	168	208	216	DOM;	
12S/03E-27T51	PRUNEDALE	5/11/53	C.F. DOUGHERTY	8	102	132	150	DOM;	
12S/03E-27T52	PRUNEDALE	3/19/79	C.F. DOUGHERTY	8	252	292	300	DOM;	
12S/03E-27T53	PRUNEDALE	8/31/56	C.F. DOUGHERTY	10	130	164	172	IRR;	
12S/03E-27T54	PRUNEDALE	12/15/76	MAGGIORA BROS	5	70	350	370	DOM;	
12S/03E-28B02	PRUNEDALE	11/20/81	ASH & SONS	6	290	340	340	DOM;	
12S/03E-28B50	AROMAS	5/7/85	ASH & SONS	6	290	340	340	DOM;	
12S/03E-28C01	PRUNEDALE	6/27/77	EDBERG DRILLING				310	DOM;	
12S/03E-28D01	PRUNEDALE	9/6/73	DOUGHERTY PUMP & DRILLING	10	274	334	344	DOM;	
12S/03E-28D50	AROMAS	3/2/78	ASH & SONS	7	240	270	272	DOM;	
12S/03E-28D51	AROMAS	9/6/73	SALINAS PUMP CO	10	274	334	344	DOM;	
12S/03E-28D52	PRUNEDALE	11/27/76	CLIFFORD PUMP & WELL	6	280	310	360	DOM	
12S/03E-28E50	PRUNEDALE								DESTROYED
12S/03E-28G50	AROMAS	5/12/78	MAGGIORA BROS	13	230	300	310	DOM;	
12S/03E-28H50	PRUNEDALE	10/9/87	ASH & SONS	5	260	300	260	DOM;	
12S/03E-28H51	PRUNEDALE	10/14/87	ASH & SONS	5	260	300	301	DOM;	
12S/03E-28H52	PRUNEDALE	1/28/89	ASH & SONS	5	340	380	390	DOM;	
12S/03E-28J50	AROMAS	5/30/77	CLIFFORD PUMP & WELL	8	275	295	315	DOM	
12S/03E-28J51	PRUNEDALE	9/25/84	ASH & SONS	6	260	300	310	DOM;	
12S/03E-28J52	PRUNEDALE	3/17/89	C.F. DOUGHERTY	5	216	356	360	DOM;	
12S/03E-28K50	PRUNEDALE	6/13/90	ASH & SONS	6	206	246	249	DOM;	
12S/03E-28K51	PRUNEDALE	7/5/84	ASH & SONS	6	210	250	255	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/03E-28L50	PRUNEDALE	6/11/86	ASH & SONS	5	240	280	285	DOM;	
12S/03E-28M50	PRUNEDALE	5/18/60	C.F. DOUGHERTY	10	32	72	80	DOM;	
12S/03E-28M51	PRUNEDALE	10/26/66	SALINAS PUMP CO	12	240	600	609	DOM;IRR;	
12S/03E-28M52	PRUNEDALE	2/24/86	ASH & SONS	8	220	300	303	IRR;	
12S/03E-28M53	PRUNEDALE	1/7/85	DE LA GRANGE & SON	6	156	196	200	DOM;	
12S/03E-28M54	PRUNEDALE	9/19/85	ASH & SONS	5	220	240	265	DOM;	
12S/03E-28M55	PRUNEDALE	12/19/85	ASH & SONS	5	140	180	185	DOM;	
12S/03E-28P50	PRUNEDALE	7/25/79	ASH & SONS	6	203	235	235	DOM;	
12S/03E-28R50	AROMAS	8/31/77	CLIFFORD PUMP & WELL	6	260	290	307	DOM	
12S/03E-28R51	PRUNEDALE	7/2/86	ASH & SONS	5	300	340	345	DOM;	
12S/03E-28T50	PRUNEDALE	2/10/80	CLIFFORD PUMP & WELL				601		
12S/03E-28T51	PRUNEDALE	7/7/78	MAGGIORA BROS	12	250	280	310	DOM;	
12S/03E-28T52	AROMAS	5/16/78	MAGGIORA BROS	12	190	360	370	DOM;	
12S/03E-28T54	AROMAS	10/24/73	MAGGIORA BROS	12	155	220	220	DOM;	
12S/03E-28T55	AROMAS	10/28/80	C.F. DOUGHERTY	8	284	324	332	DOM;	
12S/03E-28T56	PRUNEDALE	2/10/80	CLIFFORD PUMP & WELL	12	240	470	495	IRR	
12S/03E-28T57	AROMAS	11/28/80	C.F. DOUGHERTY	8	344	384	392	DOM;	
12S/03E-28T58	PRUNEDALE	6/8/84	CHAPPELL PUMP & SUPPLY	6	150	270	280	DOM;	
12S/03E-28T59	AROMAS	6/30/78	MAGGIORA BROS	12	250	300	325	DOM;	
12S/03E-28T60	AROMAS	6/20/83	ASH & SONS	5	240	280	286	DOM;	
12S/03E-28T61	AROMAS	6/28/78	MAGGIORA BROS	6	240	290	325	DOM;	
12S/03E-28T62	PRUNEDALE	2/10/80	CLIFFORD PUMP & WELL				502		
12S/03E-28T63	PRUNEDALE	2/10/80	CLIFFORD PUMP & WELL				707		
12S/03E-28T64	PRUNEDALE	10/24/69	C.F. DOUGHERTY	8	60	100	108	DOM;	
12S/03E-28T65	PRUNEDALE	2/10/80	CLIFFORD PUMP & WELL				436		
12S/03E-28T66	PRUNEDALE	11/17/75	ASH & SONS	7	168	200	200	DOM;	
12S/03E-28T67	PRUNEDALE	2/10/77	C.F. DOUGHERTY	8	280	320	328	DOM;	
12S/03E-28T68	AROMAS	6/26/80	ASH & SONS	6	318	350	360	DOM;	
12S/03E-28T69	AROMAS	10/8/78	CHAPPELL PUMP & SUPPLY	8	110	370	400	DOM/IRR	
12S/03E-29C01	PRUNEDALE	12/1/72	DOUGHERTY PUMP & DRILLING	8	184	224	232	DOM;	
12S/03E-29G50	PRUNEDALE	10/3/89	ASH & SONS	5	160	200	210		
12S/03E-29H01	PRUNEDALE	1/1/50	LITCHFIELD	12	106	130	169	IRR;	
12S/03E-29H02	PRUNEDALE			10			300	DOM;	
12S/03E-29H50	PRUNEDALE	7/26/87	C.F. DOUGHERTY				151		DES
12S/03E-29H51	PRUNEDALE	9/9/88	ASH & SONS	5	160	200	205	DOM;	
12S/03E-29H52	PRUNEDALE	5/12/81	ASH & SONS	5	126	156	159	DOM;	
12S/03E-29J50	PRUNEDALE	3/1/89	C.F. DOUGHERTY	8	220	300	400	IRR;	
12S/03E-29J51	PRUNEDALE	9/19/91	DOUGHERTY PUMP & DRILLING	6	220	280	300	DOM	
12S/03E-29Q50	PAJARO-SPRINGFIELD	4/18/77	MAGGIORA BROS	26	340	430	455	IRR;	
12S/03E-29R50	PRUNEDALE	5/7/81	ASH & SONS	5	210	242	250	DOM;	
12S/03E-30A01	PRUNEDALE	4/8/56	VALLEY PUMP	12	141	225	225	IRR;	
12S/03E-30A50	PRUNEDALE	3/9/82	C.F. DOUGHERTY	8	132	184	192	IRR;	
12S/03E-30B50	PRUNEDALE	6/22/88	ASH & SONS	5	360	400	415	DOM;	
12S/03E-30B51	PRUNEDALE	12/7/88	ASH & SONS	5	360	420	423	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/03E-30B52	PRUNEDALE	10/13/87	ASH & SONS	5	360	400	403	DOM;	
12S/03E-30B53	PRUNEDALE	10/22/72	ASH & SONS	7	120	156	160	DOM;	
12S/03E-30B54	PRUNEDALE	11/30/88	ASH & SONS	5	375	415	420	DOM;	
12S/03E-30B55	PAJARO-SPRINGFIELD	12/25/00	ASH & SONS	5	320	360	360	DOM	
12S/03E-30C50	PRUNEDALE	2/17/87	ASH & SONS	5	320	360	375	DOM;	
12S/03E-30C51	PRUNEDALE	8/17/84	C.F. DOUGHERTY	8	280	320	328	DOM;	
12S/03E-30D50	PRUNEDALE	10/11/77	ASH & SONS	7	204	236	236	DOM;	
12S/03E-30D51	PRUNEDALE	2/5/84	C.F. DOUGHERTY	8	296	336	344	DOM;	
12S/03E-30D52	PRUNEDALE	12/8/82	ASH & SONS	8	190	270	283	IRR;	
12S/03E-30D53	PRUNEDALE	12/8/82	ASH & SONS	8	190	270	283	IRR;	
12S/03E-30E50	PRUNEDALE	9/7/83	MAGGIORA BROS	6	130	200	220	DOM;	
12S/03E-30E51	PRUNEDALE	11/13/82	MAGGIORA BROS	6	130	180	205	DOM;	
12S/03E-30F50	PRUNEDALE	10/17/77	ASH & SONS	6	200	232	232	DOM;	
12S/03E-30K50	AROMAS	11/11/81	ASH & SONS	6	180	220	230	IRR;	
12S/03E-30L01	PRUNEDALE	4/11/73	ASH & SONS	7	99	135	135	DOM;	
12S/03E-30L50	PRUNEDALE	11/12/86	ASH & SONS	6	280	320	325	DOM;	
12S/03E-30L51	PRUNEDALE	5/22/92	ASH & SONS	6	340	380	380	DOM;	
12S/03E-30N50	PAJARO-SPRINGFIELD	5/31/51	C.F. DOUGHERTY	12	60	81	90	DOM;	
12S/03E-30N51	PRUNEDALE	7/8/92	ASH & SONS	6	240	280	280	DOM;	
12S/03E-30P50	PRUNEDALE	6/29/81	MAGGIORA BROS	10	260	320	340	IRR;	
12S/03E-30Q50	PRUNEDALE	9/17/77	ASH & SONS	7	159	192	192	DOM;	
12S/03E-30Q51	PRUNEDALE	7/9/86	ASH & SONS	6	220	260	265	DOM;	
12S/03E-30Q52	PRUNEDALE	10/23/85	ASH & SONS	6	315	355	370	DOM;	
12S/03E-30R50	PRUNEDALE	2/23/82	ASH & SONS	5	275	315	318	DOM;	
12S/03E-30R51	PRUNEDALE	10/6/77	ASH & SONS	7	213	245	245	DOM;	
12S/03E-30T50	PRUNEDALE	7/9/58	JOHN A BRANDT	8	36	48	60		
12S/03E-30T51	PRUNEDALE	4/25/75	ASH & SONS	7	228	260	275	DOM;	
12S/03E-30T52	PRUNEDALE	10/2/61	C.F. DOUGHERTY	10	237	317	325	DOM;	
12S/03E-30T53	PRUNEDALE	10/26/60	C.F. DOUGHERTY	8	160	200	208	DOM;	
12S/03E-30T54	PRUNEDALE	4/18/61	C.F. DOUGHERTY	8	144	184	192	DOM;	
12S/03E-30T55	PRUNEDALE	2/28/75	ASH & SONS	7	328	360	380	DOM;	
12S/03E-30T56	PRUNEDALE	2/23/66	FREEDOM GEN REPAIR & PUMP				150		
12S/03E-30T57	PRUNEDALE	3/12/79	MAGGIORA BROS	12	160	430	460	DOM;	
12S/03E-30T58	PRUNEDALE	9/15/73	ASH & SONS	7	114	150	160	DOM;	
12S/03E-30T59	PRUNEDALE	4/30/74	C.F. DOUGHERTY	8	192	232	240	DOM;	
12S/03E-30T60	PRUNEDALE	10/9/63	C.F. DOUGHERTY	10	64	124	132		
12S/03E-30T61	PRUNEDALE	4/23/60	C.F. DOUGHERTY	8	116	156	164	DOM;	
12S/03E-30T62	PRUNEDALE	11/22/68	FREEDOM GEN REPAIR & PUMP	10	106	158	164	IRR;	
12S/03E-30T63	PRUNEDALE	1/26/79	CULLUM SYSTEMS	8	300	400	415	DOM;	
12S/03E-30T64	PRUNEDALE	2/27/75	ASH & SONS	7	160	192	205	DOM;	
12S/03E-30T65	PRUNEDALE	6/9/80	MAGGIORA BROS	26	370	621	650	IRR;	
12S/03E-30T66	PRUNEDALE	2/16/76	ASH & SONS	7	134	166	166	DOM;	
12S/03E-30T67	PRUNEDALE	4/20/66	FREEDOM GEN REPAIR & PUMP	6	79	115	116	DOM;	
12S/03E-30T68	PRUNEDALE	6/18/68	C.F. DOUGHERTY	12	178	258	284	IRR;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/03E-30T69	PRUNEDALE	7/15/72	C.F. DOUGHERTY	10	84	144	152	DOM;	
12S/03E-30T70	PRUNEDALE	8/9/76	ASH & SONS	7	128	160	175	DOM;	
12S/03E-30T71	PRUNEDALE	3/16/75	ASH & SONS	7	208	240	252	DOM;	
12S/03E-30T72	PRUNEDALE	9/18/79	C.F. DOUGHERTY	8	140	180	188	DOM;	
12S/03E-30T73	PRUNEDALE	3/4/72	ASH & SONS	6	300	332	345	DOM;	
12S/03E-30T74	PRUNEDALE	4/8/60	ASH & SONS	12	200	360	380	IRR;	
12S/03E-30T75	PRUNEDALE	10/29/75	ASH & SONS	7	271	303	308	DOM;	
12S/03E-30T76	PRUNEDALE	5/23/75	C.F. DOUGHERTY	8	200	240	252	IRR;	
12S/03E-30T77	PRUNEDALE	7/10/74	C.F. DOUGHERTY	8	72	112	120	DOM;	
12S/03E-30T78	PRUNEDALE	10/31/80	CULLUM SYSTEMS	10	68	184	192	DOM;	
12S/03E-30T79	PRUNEDALE	7/6/66	SALINAS PUMP CO	10	120	260	273	IRR;	
12S/03E-30T80	PRUNEDALE	9/5/75	ASH & SONS	7	304	340	345	DOM;	
12S/03E-30T81	PRUNEDALE	7/24/68	C.F. DOUGHERTY	8	204	244	252	DOM;	
12S/03E-30T82	PRUNEDALE	5/26/76	C.F. DOUGHERTY	8	156	256	112	IRR;	
12S/03E-30T83	PRUNEDALE	6/6/68	C.F. DOUGHERTY	10	120	160	168	DOM;	
12S/03E-30T84	PRUNEDALE	8/17/72	C.F. DOUGHERTY	8	208	248	256	DOM;	
12S/03E-30T85	PRUNEDALE	6/27/66	SALINAS PUMP CO	12	96	312	318	IRR;	
12S/03E-30T86	PRUNEDALE	6/15/79	EARTHFLOW DRILLING	5	231	381	395	DOM;	
12S/03E-30T87	PRUNEDALE	9/20/76	ROBINETT & SONS	8	289	328	328	DOM;	
12S/03E-30T88	PRUNEDALE	5/8/79	MAGGIORA BROS	20	200	250	280	IRR;	
12S/03E-30T89	PRUNEDALE	4/3/92	ROBINETT & SONS	6	295	395	395	DOM;	
12S/03E-31B01	PRUNEDALE							DOM;	
12S/03E-31C50									
12S/03E-31D01	PRUNEDALE			6			220	DOM;	
12S/03E-31D02	PRUNEDALE			8			150	DOM;	
12S/03E-31D50	PRUNEDALE	3/17/78	C.F. DOUGHERTY	8	308	350	360	DOM;	
12S/03E-31E01	PRUNEDALE	4/1/57	BELKNAP	8	92	148	170	DOM;	
12S/03E-31E02	PRUNEDALE			6			240	DOM;	
12S/03E-31E03	PRUNEDALE	1/23/76	ASH & SONS	7	233	265	265	DOM;	
12S/03E-31E50	PRUNEDALE	11/9/89	C.F. DOUGHERTY	5	300	360	360	DOM	
12S/03E-31F01	PRUNEDALE			7			160	DOM;	
12S/03E-31F50	PRUNEDALE	4/12/90	ASH & SONS	5	430	470	480	DOM;	
12S/03E-31G01	PRUNEDALE	5/1/55	GUNN	8	147	156	156	DOM;	
12S/03E-31G50	PRUNEDALE	10/27/89	ASH & SONS	6	270	310	345	DOM;	
12S/03E-31J50	PRUNEDALE	2/3/57	C.F. DOUGHERTY	8	108	210	210	DOM;	
12S/03E-31J51	PRUNEDALE	7/29/83	LANDINO	6	160	240	250	DOM;	
12S/03E-31J52	PRUNEDALE	8/17/83	LANDINO	6	350	490	500	DOM;	
12S/03E-31M50	PRUNEDALE	8/10/83	ASH & SONS		462	502	502	DOM;	
12S/03E-31P50	PRUNEDALE	9/25/50	NUNES	10	67	282	310	DOM;IRR;	
12S/03E-31P51	PRUNEDALE	1/13/81	C.F. DOUGHERTY	8	160	200	208	DOM;	
12S/03E-31R01	PRUNEDALE	7/3/54	C.F. DOUGHERTY	8	212	244	252	DOM;	
12S/03E-31R50	PRUNEDALE	5/3/89	ASH & SONS	5	260	300	302	DOM;	
12S/03E-31T50	PRUNEDALE	10/10/75	MAGGIORA BROS	9	230	330	340	DOM	
12S/03E-31T51	PRUNEDALE	1/29/52	C.F. DOUGHERTY	8	84	114	123	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/03E-31T52	PRUNEDALE	3/27/80	ASH & SONS	5	233	273	285	DOM;	
12S/03E-31T53	PRUNEDALE	9/16/53	C.F. DOUGHERTY	8	68	120	128	DOM;	
12S/03E-31T54	PRUNEDALE	9/27/72	ASH & SONS	7	253	289	305	DOM;	
12S/03E-31T55	PRUNEDALE	6/25/71	CLIFFORD PUMP & WELL	12	270	300	330	IRR	
12S/03E-31T56	PRUNEDALE	9/25/73	ASH & SONS	7	234	270	270	DOM;	
12S/03E-31T57	PRUNEDALE	9/1/66	C.F. DOUGHERTY	8	212	252	260	DOM;	
12S/03E-31T58	PRUNEDALE	6/22/59	C.F. DOUGHERTY	8	110	152	160	DOM;	
12S/03E-31T59	PRUNEDALE	10/24/61	C.F. DOUGHERTY	8	72	112	120	DOM;	
12S/03E-31T60	PRUNEDALE	6/15/65	C.F. DOUGHERTY	8	256	296	304	DOM;	
12S/03E-31T61	PRUNEDALE	4/24/76	ASH & SONS	7	288	320	320	DOM;	
12S/03E-31T62	PRUNEDALE	8/3/70	CLIFFORD PUMP & WELL	12	344	404	412	IRR	
12S/03E-31T63	PRUNEDALE	9/7/62	C.F. DOUGHERTY	8	192	232	240	DOM	
12S/03E-31T64	PRUNEDALE	1/20/80	C.F. DOUGHERTY	8	172	220	228	DOM;	
12S/03E-31T65	PRUNEDALE	12/10/71	ASH & SONS	6	200	236	250	DOM;	
12S/03E-31T66	PRUNEDALE	8/5/50	C.F. DOUGHERTY	8	159	180	189	DOM;	
12S/03E-31T67	PRUNEDALE	1/4/62	C.F. DOUGHERTY	10	124	164	172	DOM;	
12S/03E-31T69	PRUNEDALE	2/15/63	C.F. DOUGHERTY	8	92	132	140	DOM;	
12S/03E-31T70	PRUNEDALE	5/25/66	FREEDOM GEN REPAIR & PUMP				217	DOM;	
12S/03E-31T71	PRUNEDALE	2/14/64	C.F. DOUGHERTY	8	104	144	152	DOM;	
12S/03E-31T72	PRUNEDALE	3/31/62	C.F. DOUGHERTY	12			340	DOM;	
12S/03E-31T73	PRUNEDALE	2/2/72	CLIFFORD PUMP & WELL	8	301	361	361	DOM	
12S/03E-31T74	PRUNEDALE	2/6/64	C.F. DOUGHERTY	10	72	112	120	DOM;	
12S/03E-31T75	PRUNEDALE	6/18/58	C.F. DOUGHERTY	8	200	240	248	DOM;	
12S/03E-31T76	PRUNEDALE	9/10/80	ASH & SONS	5	360	400	410	DOM;	
12S/03E-31T77	PRUNEDALE	7/12/61	ASH & SONS	12	264	316	345	DOM;	
12S/03E-31T78	PRUNEDALE	3/22/65	C.F. DOUGHERTY	7	284	324	372	DOM;	
12S/03E-31T79	PRUNEDALE	8/17/59	C.F. DOUGHERTY	8	224	276	292	DOM;	
12S/03E-31T80	PRUNEDALE	2/3/65	C.F. DOUGHERTY	8	180	220	228	DOM;	
12S/03E-31T81	PRUNEDALE	5/6/61	C.F. DOUGHERTY	8	80	120	128	DOM;	
12S/03E-31T82	PRUNEDALE	9/21/79	ASH & SONS	6	280	312	312	DOM;	
12S/03E-31T83	PRUNEDALE	8/2/52	C.F. DOUGHERTY	8	54	84	93	DOM;	
12S/03E-31T84	PRUNEDALE	6/3/54	C.F. DOUGHERTY	8	212	244	252	DOM;	
12S/03E-31T85	PRUNEDALE	7/6/81	MAGGIORA BROS	8	220	300	325	IRR;	
12S/03E-31T86	PAJARO-SPRINGFIELD	9/2/93	ASH & SONS	6	340	380	380	DOM	
12S/03E-32N01	PRUNEDALE	9/9/72	ASH & SONS	9	265	313	313	DOM;	
12S/03E-32N50	PRUNEDALE	3/20/62	C.F. DOUGHERTY	12	200	334	342		
12S/03E-32P50	PRUNEDALE	1/1/66			254	286		DOM;	
12S/03E-33B50	PRUNEDALE	7/29/85	EATON	9	340	440	440	DOM;	
12S/03E-33D50	PRUNEDALE	7/25/68	FREEDOM GEN REPAIR & PUMP	8	86	126	200	DOM;	
12S/03E-33H01	PRUNEDALE	6/2/62	C.F. DOUGHERTY	10	335	445	542	DOM;	
12S/03E-33H50	PRUNEDALE	9/1/79	MAGGIORA BROS	10	20	60	60	DOM;	
12S/03E-33J01	PRUNEDALE	11/7/75	MAGGIORA BROS	86	80	220	220	DOM;	
12S/03E-33J50	PRUNEDALE	11/21/75	MAGGIORA BROS	8	80	280	280	DOM;	
12S/03E-33J51	PRUNEDALE	10/14/82	ASH & SONS	5	466	506	530	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/03E-33J52	PRUNEDALE	5/20/90	ASH & SONS	5	455	515	520	DOM;	
12S/03E-33K50	PRUNEDALE	12/5/87	MAGGIORA BROS	6	290	450	450	DOM;	
12S/03E-33K51	PRUNEDALE	10/14/81	ASH & SONS				345		HOLE;
12S/03E-33L03	PRUNEDALE	8/19/70	MAGGIORA BROS	30	20	60	61	DOM;	
12S/03E-33L04	PRUNEDALE	8/28/70	MAGGIORA BROS	30	10	30	31	DOM;	
12S/03E-33L50	PRUNEDALE	5/4/81	MAGGIORA BROS	9	115	175	176	DOM;	
12S/03E-33L51	PRUNEDALE	5/7/81	MAGGIORA BROS	9	148	348	350	DOM;	
12S/03E-33L52	PRUNEDALE	9/15/81	ASH & SONS	5	276	336	345	DOM	
12S/03E-33P50	PRUNEDALE	6/15/83	MAGGIORA BROS	5	98	358	378	DOM;	
12S/03E-33R50	PRUNEDALE	6/10/87	ASH & SONS	5	365	405	405	DOM;	
12S/03E-33T50	PRUNEDALE	1/17/69	CLIFFORD PUMP & WELL	30	20	39	40	DOM	
12S/03E-33T51	PRUNEDALE		ROBINETT & SONS	8	150	206	206	DOM;	
12S/03E-33T52	PRUNEDALE	5/24/80	ASH & SONS	8	360	400	410	DOM;IRR;	
12S/03E-33T53	PRUNEDALE	4/18/80	MAGGIORA BROS	5	70	380	380	DOM;	
12S/03E-33T54	PRUNEDALE		ROBINETT & SONS	8	130	192	192	DOM;	
12S/03E-33T55	PRUNEDALE	10/15/74	CLIFFORD PUMP & WELL	13	340	500	505	DOM	
12S/03E-33T56	PRUNEDALE	2/11/87	ASH & SONS	5	260	300	302	DOM;	
12S/03E-33T57	PRUNEDALE	11/18/80	ROBINETT & SONS	6	156	256	256	DOM;	
12S/03E-33T58	PRUNEDALE	9/26/84	MAGGIORA BROS	5	75	175	210	DOM;	
12S/03E-34C01	PRUNEDALE							DOM;	
12S/03E-34D50	PRUNEDALE	5/17/85	ASH & SONS	5	200	240	245	DOM;	
12S/03E-34M50	PRUNEDALE	3/30/88	ASH & SONS	5	260	300	306	DOM;	
12S/03E-34M51	PRUNEDALE	5/26/88	ASH & SONS	5	270	330	333	DOM;	
12S/03E-34M52	PRUNEDALE	5/4/92	ASH & SONS	5	272	312	312	DOM;	
12S/03E-34M53	PRUNEDALE	4/23/92	ASH & SONS	5	540	600	600	DOM;	
12S/03E-34M54	PRUNEDALE	7/2/92	ASH & SONS	5	275	315	315	DOM	
12S/03E-34N50	PRUNEDALE	8/28/75	MAGGIORA BROS	16	130	340	360	DOM;	
12S/03E-34P50	PRUNEDALE	2/2/79	SALINAS PUMP CO	8	80	220	304	DOM;	
12S/03E-34T50	PRUNEDALE	6/28/54	C.F. DOUGHERTY	8	72	104	112	DOM;	
12S/03E-34T51	PRUNEDALE	1/20/75	CLIFFORD PUMP & WELL	26	90	390	415	IRR	
12S/03E-34T52	PRUNEDALE	8/16/66	C.F. DOUGHERTY	8	80	120	128	DOM;	
12S/03E-34T53	PRUNEDALE	10/10/60	C.F. DOUGHERTY	8	84	126	148	IRR;	
12S/03E-34T54	PRUNEDALE	2/5/62	C.F. DOUGHERTY	8	68	108	163	DOM;	
12S/03E-34T55	PRUNEDALE	1/14/72	CLIFFORD PUMP & WELL	30	30	60	60	DOM	
12S/03E-34T56	PRUNEDALE	12/22/76	MAGGIORA BROS	5	150	350	350	DOM;	
12S/03E-34T57	PRUNEDALE	8/17/54	C.F. DOUGHERTY	8	210	296	304	DOM;	
12S/03E-34T58	PRUNEDALE	4/7/54	SALINAS PUMP CO	8	120	252	280	IRR;	
12S/03E-34T59	PRUNEDALE	6/7/75	CLIFFORD PUMP & WELL	5	200	280	280	DOM	
12S/03E-34T60	PRUNEDALE	7/21/62	C.F. DOUGHERTY	8	60	100	128	DOM;	
12S/03E-34T61	PRUNEDALE	12/12/79	MAGGIORA BROS	8	40	205	205	DOM;	
12S/03E-34T62	AROMAS	7/30/80	MAGGIORA BROS	8	400	400	420	DOM;IRR;	
12S/03E-34T63	PAJARO-SPRINGFIELD	12/31/91	ROBINETT & SONS	6	295	395	395	DOM;	
12S/03E-34T64	PRUNEDALE	6/20/93	ASH & SONS	5	204	534	534	DOM	
12S/03E-34T65	PRUNEDALE	7/12/93	ASH & SONS	5	294	324	324	DOM	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
12S/03E-80T50	PAJARO-SPRINGFIELD	7/19/91	ASH & SONS	5	320	360	360	DOM	
12S/03E-80T51	PAJARO-SPRINGFIELD	10/1/93	ASH & SONS	5	459	499	499	DOM	
13S/02E-01A50	PRUNEDALE	5/20/87	ASH & SONS	5	560	620	625	DOM;	
13S/02E-01A51	PRUNEDALE	4/10/87	ASH & SONS	5	530	570	640		ABAN;
13S/02E-01B01	PRUNEDALE			8			320	DOM;	
13S/02E-01B02	PRUNEDALE	7/29/72	ASH & SONS	66	240	276	290	DOM;	
13S/02E-01B03	PRUNEDALE	6/1/59		6	250	335	500	DOM;	
13S/02E-01B50	PRUNEDALE	4/20/90	ASH & SONS	8	404	444	505	DOM;	
13S/02E-01C01	PRUNEDALE	8/12/59	ASH & SONS	8	350	500	500	DOM;	
13S/02E-01C02	PRUNEDALE	5/8/67	ASH & SONS	6	420	472	476	MUN;	
13S/02E-01D50	PRUNEDALE	4/1/61	ASH & SONS	12			352	DOM;IRR;	
13S/02E-01D51	PRUNEDALE	12/6/75	ASH & SONS	7	298	330	345	DOM;	
13S/02E-01E50	PRUNEDALE	11/16/84	ASH & SONS	5	440	500	520	DOM;	
13S/02E-01E51	PRUNEDALE	8/21/92	SALINAS PUMP CO				540		DES
13S/02E-01F01	PRUNEDALE			10			400	DOM;	
13S/02E-01F50	PRUNEDALE	2/17/89	ASH & SONS	5	405	445	460	DOM;	
13S/02E-01F51	PRUNEDALE	2/2/89	ASH & SONS	5	360	400	403	DOM;	
13S/02E-01G01	PRUNEDALE							DOM;	
13S/02E-01J50	PRUNEDALE	4/10/92	ASH & SONS				197		DES;
13S/02E-01K01	PRUNEDALE	3/26/59	C.F. DOUGHERTY	10	224	264	272	IRR;	
13S/02E-01K50	PRUNEDALE	10/18/85	ASH & SONS	5	315	355	365	DOM;	
13S/02E-01M50	PRUNEDALE	10/21/88	ASH & SONS	5	240	280	294	DOM;	
13S/02E-01M51	PRUNEDALE	3/1/86	ASH & SONS	5	260	300	315	DOM;	
13S/02E-01M52	PRUNEDALE	6/28/79	C.F. DOUGHERTY	8	336	376	384	DOM;	
13S/02E-01M53	PRUNEDALE	5/2/86	ASH & SONS	5	300	360	370	DOM;	
13S/02E-01M54	PRUNEDALE	7/25/83	ASH & SONS		304	364	364	DOM;IRR;	
13S/02E-01M55	PRUNEDALE	8/4/79	ASH & SONS	6	168	200	210	DOM;	
13S/02E-01N01	PRUNEDALE	9/27/61	ASH & SONS	12	40	336	355	DOM;	
13S/02E-01N50	PRUNEDALE	12/15/74	ASH & SONS	6	348	380	400	DOM;	
13S/02E-01N51	PRUNEDALE	11/7/73	ASH & SONS	7	192	224	230	DOM;	
13S/02E-01P01	PRUNEDALE			8			340	DOM;	
13S/02E-01P50	PRUNEDALE	2/7/91	ASH & SONS				260		DES
13S/02E-01P51	PRUNEDALE	2/8/91	ASH & SONS	5	318	358	365	DOM;	
13S/02E-01P52	PRUNEDALE	4/3/92	ASH & SONS	5	457	497	497	DOM;	
13S/02E-01T50	PRUNEDALE	8/29/72	ASH & SONS	6	340	376	385	DOM;	
13S/02E-01T51	PRUNEDALE	8/28/58	C.F. DOUGHERTY	10	220	280	288	DOM;	
13S/02E-01T52	PRUNEDALE	5/1/81	ASH & SONS	8	270	320	340	DOM;	
13S/02E-01T53	PRUNEDALE	5/22/64	C.F. DOUGHERTY	8	224	264	272	DOM;	
13S/02E-01T54	PRUNEDALE	10/16/70	ASH & SONS	7	387	435	445	MUN;	
13S/02E-01T55	PRUNEDALE	5/8/81	ASH & SONS	5	308	408	400	DOM;	
13S/02E-01T56	PRUNEDALE	4/9/56	C.F. DOUGHERTY	8	84	124	135	IRR;	
13S/02E-01T57	PRUNEDALE	7/1/63	C.F. DOUGHERTY	8	44	84	92	DOM;	
13S/02E-01T58	PRUNEDALE	10/9/70	ASH & SONS	6	380	420	490		
13S/02E-01T59	PRUNEDALE	4/27/70	C.F. DOUGHERTY	8	308	368	372	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-01T60	PRUNEDALE	12/23/74	C.F. DOUGHERTY	8	280	320	328	DOM;	
13S/02E-01T61	PRUNEDALE	12/8/80	ASH & SONS	5	290	330	340	DOM;	
13S/02E-01T62	PRUNEDALE	3/31/87	ASH & SONS	5	460	520	520	DOM;	
13S/02E-01T63	PRUNEDALE	9/25/60	ASH & SONS	8	240	300	345	DOM;	
13S/02E-01T64	PRUNEDALE	9/12/75	ASH & SONS	7	166	198	200	DOM;	
13S/02E-01T65	PRUNEDALE	8/1/61	ASH & SONS		260	360	385	DOM;IRR;	
13S/02E-01T66	PRUNEDALE	10/4/78	C.F. DOUGHERTY	8	204	244	252	DOM;	
13S/02E-01T67	PRUNEDALE	5/24/62	C.F. DOUGHERTY	8	172	212	220	DOM;	
13S/02E-01T68	PRUNEDALE	8/1/66	MELS DRILLING	8	240	286	286	DOM;	
13S/02E-02C01	PRUNEDALE	11/22/54	C.F. DOUGHERTY	8	212	244	252	DOM;	
13S/02E-02C02	PRUNEDALE							DOM;	
13S/02E-02C50	PRUNEDALE	4/27/76	ASH & SONS	12	240	300	300	IRR;	
13S/02E-02D50	PRUNEDALE	5/17/90	ASH & SONS	6	260	320	340	DOM;	
13S/02E-02D51	PRUNEDALE	1/7/86	ASH & SONS	6	340	420	460	DOM;	
13S/02E-02E01	PRUNEDALE	7/27/71	DOUGHERTY PUMP & DRILLING	8	156	196	204	DOM;	
13S/02E-02E02	PRUNEDALE							DOM;	
13S/02E-02G50	PRUNEDALE	6/26/86	C.F. DOUGHERTY	6	300	360	370	DOM;	
13S/02E-02H50	PRUNEDALE	10/23/87	ASH & SONS	5	260	300	303	DOM;	
13S/02E-02M50	PRUNEDALE	12/6/79	ASH & SONS	6	200	232	232	DOM;	
13S/02E-02M51	PRUNEDALE	7/15/83	ASH & SONS	5	260	300	300	DOM;	
13S/02E-02N01	PRUNEDALE	4/16/80	C.F. DOUGHERTY	8	324	364	472	DOM;	
13S/02E-02N02	PRUNEDALE	1/1/71	CLIFFORD PUMP & WELL	8	128	176	180	DOM	
13S/02E-02P50	PRUNEDALE	6/27/84	ASH & SONS	6	168	208	210	DOM;	
13S/02E-02Q01	PRUNEDALE								
13S/02E-02Q50	PRUNEDALE	8/19/85	ASH & SONS	6	120	160	170	DOM	
13S/02E-02Q51	PRUNEDALE	7/31/86	ASH & SONS	5	200	240	240	DOM;	
13S/02E-02Q52	PRUNEDALE	9/1/81	ASH & SONS	5	127	157	170	DOM;	
13S/02E-02R01	PRUNEDALE	10/13/59	DUER	12	160	211	220	IRR;	DES;
13S/02E-02R02	PRUNEDALE								
13S/02E-02R50	PAJARO-SPRINGFIELD	9/17/91	ROBINETT & SONS	6	300	400	400	IRR	
13S/02E-02T50	PRUNEDALE	8/5/75	ASH & SONS	7	320	352	370	DOM;	
13S/02E-02T51	PRUNEDALE	2/3/71	C.F. DOUGHERTY	8	152	192	200	DOM;	
13S/02E-02T52	PRUNEDALE	3/6/86	ASH & SONS	5	270	310	325	DOM;	
13S/02E-02T53	PRUNEDALE	6/12/72	ASH & SONS	6	116	152	160	DOM;	
13S/02E-02T54	PRUNEDALE	7/12/78	CLIFFORD PUMP & WELL		290	425	425		
13S/02E-02T55	PRUNEDALE	1/10/62	C.F. DOUGHERTY	8	220	260	268	DOM;	
13S/02E-02T56	PRUNEDALE	6/23/76	CLIFFORD PUMP & WELL	6	155	185	209	DOM	
13S/02E-02T57	PRUNEDALE	12/20/76	MAGGIORA BROS	13	238	283	310	DOM;	
13S/02E-02T58	PRUNEDALE	1/25/71	C.F. DOUGHERTY	8	212	252	260	DOM;	
13S/02E-02T59	PRUNEDALE	11/30/63	C.F. DOUGHERTY	8	212	252	260	DOM;	
13S/02E-02T60	PRUNEDALE	6/11/62	C.F. DOUGHERTY	10	252	312	320	DOM;	
13S/02E-02T61	PRUNEDALE	4/15/77	MELVILLE DRILLING	8	120	160	168	DOM;	
13S/02E-02T62	PRUNEDALE	8/30/75	ASH & SONS	7	270	302	315	DOM;	
13S/02E-02T63	PRUNEDALE	9/16/77	CLIFFORD PUMP & WELL	6	270	290	311	DOM	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-02T64	PRUNEDALE	12/19/68	FREEDOM GEN REPAIR & PUMP	8	126	148	204	DOM;	
13S/02E-02T65	PRUNEDALE	1/15/55	C.F. DOUGHERTY	8	64	96	104	DOM;	
13S/02E-02T66	PRUNEDALE	10/4/79	ASH & SONS	6	280	312	312	DOM;	
13S/02E-02T67	PRUNEDALE	10/13/73	ASH & SONS	7	140	160	175	DOM;	
13S/02E-02T68	PRUNEDALE	6/21/75	C.F. DOUGHERTY	7	260	320	328	DOM;	
13S/02E-02T69	PRUNEDALE	3/5/77	MELVILLE DRILLING	8	96	128	136	DOM;	
13S/02E-03A50	PRUNEDALE	6/15/72	C.F. DOUGHERTY	12	460	524	534	DOM;	
13S/02E-03H01	PRUNEDALE	6/28/79	C.F. DOUGHERTY	8	160	200	208	DOM;	
13S/02E-03H50	PRUNEDALE	12/14/85	ROMAN WELL DRILLING	8	100	310	310	IRR;	
13S/02E-03H51	PAJARO-SPRINGFIELD	6/26/91	ASH & SONS	6	502	544	544	DOM	
13S/02E-03J50	PRUNEDALE	8/6/73	J. T. ROBINETT	8	195	255	255	DOM	
13S/02E-03J51	PRUNEDALE	3/23/90	ASH & SONS	5	265	305	365	DOM;	
13S/02E-03K50	PRUNEDALE	4/11/75	C.F. DOUGHERTY	14	272	332	350	DOM;	
13S/02E-03L01	PRUNEDALE	7/6/63	VALLEY PUMP	12	160	306	306	IRR;	
13S/02E-03Q01	PRUNEDALE	9/28/57	VALLEY PUMP	12	96	192	192	IRR;	
13S/02E-03Q02	PAJARO-SPRINGFIELD	9/23/86	MAGGIORA BROS	9	350	490	490	DOM;	
13S/02E-03R01	PRUNEDALE						170	DOM;	
13S/02E-03R50	PRUNEDALE	11/21/89	ASH & SONS	5	215	255	255	DOM	
13S/02E-03T50	PRUNEDALE	11/29/79	ASH & SONS	10	140	228	240	DOM;	
13S/02E-03T51	PRUNEDALE	3/3/76	C.F. DOUGHERTY	8	180	220	228	DOM;	
13S/02E-03T52	PRUNEDALE	6/24/76	CLIFFORD PUMP & WELL	6	155	185	209	DOM	
13S/02E-03T53	PRUNEDALE	3/2/63	C.F. DOUGHERTY	8	203	248	252	DOM;	
13S/02E-03T54	PRUNEDALE	5/4/64	C.F. DOUGHERTY		152	192	200	DOM;	
13S/02E-03T55	PRUNEDALE	12/15/76	MAGGIORA BROS	12	266	306	320	DOM;	
13S/02E-03T56	PRUNEDALE	4/4/55	C.F. DOUGHERTY	8	92	124	132	DOM;	
13S/02E-03T57	PRUNEDALE	8/13/73	C.F. DOUGHERTY	8	210	270	280	DOM;	
13S/02E-04E02	PAJARO-SPRINGFIELD	3/5/76		8				DOM;	
13S/02E-04F01	PAJARO-SPRINGFIELD	1/1/48	BLAKE	12				IRR;	
13S/02E-04K01	PAJARO-SPRINGFIELD	9/30/57						IRR;	
13S/02E-04K52									
13S/02E-04T50	PAJARO-SPRINGFIELD	4/19/73	ASH & SONS		160	196	205	DOM;	
13S/02E-05A01	PAJARO-SPRINGFIELD	1/9/59	VALLEY PUMP	12	272	320	400	IRR;	
13S/02E-05A02	PAJARO-SPRINGFIELD		LITCHFIELD		130	166	177		
13S/02E-05B01	PAJARO-SPRINGFIELD	9/12/58		12			225	DOM;	
13S/02E-05B03	PAJARO-SPRINGFIELD	4/22/81							
13S/02E-05B04	PAJARO-SPRINGFIELD			10			302	DOM;	
13S/02E-05B50	PAJARO-SPRINGFIELD	12/30/52	ALSOP & SON				240	DOM;	
13S/02E-05B51	PAJARO-SPRINGFIELD						200		DESTROYED
13S/02E-05C01	PAJARO-SPRINGFIELD		DUER		100	240	240		
13S/02E-05C02	PAJARO-SPRINGFIELD	4/8/74	SALINAS PUMP CO	10	168	384	408	IRR;	
13S/02E-05C50	PAJARO-SPRINGFIELD	9/22/91	ROBINETT & SONS	6	340	440	445	IRR	
13S/02E-05D01	PAJARO-SPRINGFIELD	6/4/57						IRR;	
13S/02E-05D50	PAJARO-SPRINGFIELD	1/31/73	MAGGIORA BROS	14	110	135	145	DOM;	
13S/02E-05E01	PAJARO-SPRINGFIELD	7/9/46	ALEXANDER	12	127	186	187		

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-05E02	PAJARO-SPRINGFIELD	7/17/46	ALEXANDER	12	195	309	309		
13S/02E-05E03	PAJARO-SPRINGFIELD	1/1/52		12			190	IRR;	
13S/02E-05E50	PAJARO-SPRINGFIELD	7/21/76	MAGGIORA BROS	13	120	150	165	DOM;	
13S/02E-05E51	PAJARO-SPRINGFIELD	4/7/82	ASH & SONS	8	122	172	188	DOM;	
13S/02E-05G01	PAJARO-SPRINGFIELD	5/6/57	DUER		115	265	272	IRR;	
13S/02E-05G50	PAJARO-SPRINGFIELD	7/29/72	FREEDOM GEN REPAIR & PUMP	10	142	182	200	DOM;	
13S/02E-05G51	PAJARO-SPRINGFIELD			14			200		DESTROYED
13S/02E-05J50	PAJARO-SPRINGFIELD	10/15/88	EATON	15	370	661	706	IRR;	
13S/02E-05K01	PAJARO-SPRINGFIELD	1/1/52		10			200	DOM;	
13S/02E-05M01	PAJARO-SPRINGFIELD	1/20/48	ALEXANDER	14			122	IRR;	
13S/02E-05M50	PAJARO-SPRINGFIELD	4/29/78	MAGGIORA BROS	12	135	165	180	DOM;	
13S/02E-05N50	PAJARO-SPRINGFIELD	10/8/81	MAGGIORA BROS	16	240	430	465	IRR;	
13S/02E-05Q01	PAJARO-SPRINGFIELD	4/22/81					250	IRR;	
13S/02E-05T50	PAJARO-SPRINGFIELD	1/20/58	C.F. DOUGHERTY	8	92	132	140	DOM;	
13S/02E-05T51	PAJARO-SPRINGFIELD	9/10/73	SALINAS PUMP CO	12	140	350	408	IRR;	
13S/02E-05T52	PAJARO-SPRINGFIELD	12/8/57	C.F. DOUGHERTY	12	294	344	356	IRR;	
13S/02E-05T53	PAJARO-SPRINGFIELD	7/7/80	MAGGIORA BROS	6	95	185	205	DOM;	
13S/02E-05T54	PAJARO-SPRINGFIELD	3/4/61	SALINAS PUMP CO	12	36	109	133	IRR;	
13S/02E-06A01	PAJARO-SPRINGFIELD	4/11/64	VALLEY PUMP	16	60	120	502	IRR;	
13S/02E-06A50	PAJARO-SPRINGFIELD	10/4/78	MAGGIORA BROS	12	150	230	256	DOM;	
13S/02E-06C01	PAJARO-SPRINGFIELD	2/1/44	ALEXANDER	12	79	195	198		DES;
13S/02E-06C02	PAJARO-SPRINGFIELD	6/22/66	FARMERS MERCANTILE	12				IRR;	
13S/02E-06C03	PAJARO-SPRINGFIELD	6/22/66	FARMERS MERCANTILE					DOM;	
13S/02E-06C04	PAJARO-SPRINGFIELD	2/1/88		18				TEST;	CAPPED
13S/02E-06C50	PAJARO-SPRINGFIELD	2/1/64	SALINAS PUMP CO	12	88	124	124	IRR;	
13S/02E-06D01	PAJARO-SPRINGFIELD	7/23/64						IRR;	
13S/02E-06E02	PAJARO-SPRINGFIELD	1/1/45	ALEXANDER	12	145	179	198		DES;
13S/02E-06E03	PAJARO-SPRINGFIELD	3/2/46	ALEXANDER	12	149	187	192	IRR;	
13S/02E-06E50	PAJARO-SPRINGFIELD	2/26/88	MAGGIORA	14			170		DES
13S/02E-06F03	PAJARO-SPRINGFIELD	1/1/45		12	210	350	350	IRR;	
13S/02E-06F50	PAJARO-SPRINGFIELD	7/1/71	FREEDOM GEN REPAIR & PUMP	8	100	130	360	DOM;	
13S/02E-06F51	PAJARO-SPRINGFIELD	3/11/88	MAGGIORA	12			80		DES
13S/02E-06F52	PAJARO-SPRINGFIELD	3/11/88	MAGGIORA	12			190		DES
13S/02E-06F53	PAJARO-SPRINGFIELD	5/19/72	FREEDOM GEN REPAIR & PUMP	4	155	195	195	DOM;	
13S/02E-06F54	PAJARO-SPRINGFIELD	8/18/72	FREEDOM GEN REPAIR & PUMP	14	156	186	360	IRR;	
13S/02E-06G01	PAJARO-SPRINGFIELD	6/28/74	MAGGIORA BROS	12	385	425	425	IRR;	
13S/02E-06H50	PRUNEDALE	2/27/92	ASH & SONS	6			490	DOM	
13S/02E-06J03	PAJARO-SPRINGFIELD	3/5/76						DOM;	
13S/02E-06K50	PAJARO-SPRINGFIELD	6/16/89	MAGGIORA BROS	16	880	1200	1270	DOM	
13S/02E-06L01	PAJARO-SPRINGFIELD	6/22/66		12				IRR;	
13S/02E-06L02	PAJARO-SPRINGFIELD	6/22/66							
13S/02E-06L50	PAJARO-SPRINGFIELD	2/5/85	ASH & SONS	5	140	180	182	DOM;	
13S/02E-06L51	PAJARO-SPRINGFIELD	8/14/86	ASH & SONS	5	94	114	122	DOM;	
13S/02E-06L52	PAJARO-SPRINGFIELD	10/28/72	FREEDOM GEN REPAIR & PUMP	4	130	150	150	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-06M01	PAJARO-SPRINGFIELD							IRR;	
13S/02E-06M02	PAJARO-SPRINGFIELD						160	IRR;	
13S/02E-06M50	PAJARO-SPRINGFIELD	4/30/76	CLIFFORD PUMP & WELL	9	307	347	380	DOM	
13S/02E-06P01	PAJARO-SPRINGFIELD	1/1/59		12			800	IRR;	
13S/02E-06R01	PAJARO-SPRINGFIELD	5/6/57			50	120	120	IRR;	ABAN
13S/02E-06R50	PAJARO-SPRINGFIELD	2/7/67	FREEDOM GEN REPAIR & PUMP	12	123	203	327	IRR;	
13S/02E-06R51	PAJARO-SPRINGFIELD	9/20/68	THE PUMP SHOP		147	192	196	IRR;	
13S/02E-06R52	PAJARO-SPRINGFIELD	1/17/91	EATON DRILLING	16	290	460	600	IRR;	
13S/02E-06T50	PAJARO-SPRINGFIELD	4/11/64	SALINAS PUMP CO	16	60	120	502	IRR;	
13S/02E-06T51	PAJARO-SPRINGFIELD	1/21/58	C.F. DOUGHERTY	12			390	IRR;	
13S/02E-06T52	PAJARO-SPRINGFIELD	5/1/81	ROMAN WELL DRILLING	8	240	300	400	DOM;	
13S/02E-06T53	PAJARO-SPRINGFIELD	9/27/89	MAGGIORA BROS	16	140	180	190	IRR	
13S/02E-07A01	PAJARO-SPRINGFIELD							IRR;	
13S/02E-07B01	PAJARO-SPRINGFIELD	1/1/46	ALEXANDER		120	159	159	IRR;	DES;
13S/02E-07B02	PAJARO-SPRINGFIELD	1/21/58	C.F. DOUGHERTY	12	158	208	228	IRR;	DES;
13S/02E-07B03	PAJARO-SPRINGFIELD	6/23/66						DOM;	
13S/02E-07B04	PAJARO-SPRINGFIELD	3/5/76					180	DOM;	
13S/02E-07B05	PAJARO-SPRINGFIELD	1/1/47	DUER	16			85		
13S/02E-07B50	PAJARO-SPRINGFIELD	11/8/67	FREEDOM GEN REPAIR & PUMP	8	96	141	152	IRR;	
13S/02E-07B51	PAJARO-SPRINGFIELD	1/21/58	C.F. DOUGHERTY	12			356	IRR	
13S/02E-07R01	PAJARO-SPRINGFIELD						740	DOM;	
13S/02E-08Q01	MORO COJO	5/12/50	NUNES WELL	12	100	111	285	IRR;	
13S/02E-10A01	PRUNEDALE								
13S/02E-10A02	PRUNEDALE						120	DOM;	
13S/02E-10A50	PRUNEDALE	9/1/54	PORTER	12	100	202	222	IRR;	
13S/02E-10G01	PRUNEDALE			10				IRR;	
13S/02E-10J01	PRUNEDALE	11/21/59	VALLEY PUMP	12	168	624	624	IRR;	
13S/02E-10L01	PRUNEDALE							IRR;	ABAN;
13S/02E-10R01	PRUNEDALE							IRR;	
13S/02E-10R50	PRUNEDALE	6/21/79	ASH & SONS	10	200	248	270	DOM;	
13S/02E-10T50	PRUNEDALE	6/15/79	ALSOP & SON		45	305	325	DOM;	
13S/02E-11C01	PRUNEDALE								
13S/02E-11D50	PRUNEDALE	9/24/91	ROBINETT & SONS	6	230	390	390	DOM	
13S/02E-11G01	PRUNEDALE						285	DOM;	
13S/02E-11G02	PRUNEDALE			8			340	DOM;	
13S/02E-11G03	PRUNEDALE			10			280	DOM;	
13S/02E-11M50	PRUNEDALE	6/9/87	C.F. DOUGHERTY	6	240	300	305	DOM;	
13S/02E-11M51	PRUNEDALE	6/18/87	ASH & SONS	5	140	180	185	DOM;	
13S/02E-11N01	PRUNEDALE	3/31/80	MAGGIORA BROS	6	147	187	200	DOM;	
13S/02E-11N50	PRUNEDALE	4/21/81	ASH & SONS	6	210	250	260	DOM;	
13S/02E-11P50	PRUNEDALE	1/15/82	ASH & SONS	6	160	220	235	IRR;	
13S/02E-11P51	PRUNEDALE	5/14/92	ASH & SONS				140		DES;
13S/02E-11Q50	PRUNEDALE	6/5/77	ASH & SONS	7	333	365	365	DOM;	
13S/02E-11R01	PRUNEDALE							DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-11T50	PRUNEDALE	2/25/76	CLIFFORD PUMP & WELL	8	264	324	333	DOM	
13S/02E-11T51	PRUNEDALE	10/5/64	C.F. DOUGHERTY	12	196	236	244	DOM;	
13S/02E-11T52	PRUNEDALE	4/29/60	ASH & SONS	8	180	260	280	DOM;	
13S/02E-11T53	PRUNEDALE	2/8/67	SALINAS PUMP CO	8	160	240	255	DOM;	
13S/02E-11T54	PRUNEDALE	4/22/75	C.F. DOUGHERTY	12	196	256	272	DOM;	
13S/02E-11T55	PRUNEDALE	2/15/73	C.F. DOUGHERTY	12	276	356	368	IRR;	
13S/02E-11T56	PRUNEDALE	2/21/75	C.F. DOUGHERTY	10	273	357	365	IRR;	
13S/02E-11T57	PRUNEDALE	9/16/69	C.F. DOUGHERTY	8	280	320	328	DOM;	
13S/02E-11T58	PRUNEDALE	10/29/61	ASH & SONS	6	130	160	182	DOM;	
13S/02E-11T59	PRUNEDALE	8/6/70	ASH & SONS	6	210	240	359	DOM;	
13S/02E-11T60	PRUNEDALE	5/7/59	C.F. DOUGHERTY	10	176	236	244	DOM;	
13S/02E-11T61	PRUNEDALE	3/15/74	C.F. DOUGHERTY	12	190	362	370	IRR;	
13S/02E-11T62	PRUNEDALE	6/15/66	MASSON DRILLING	10	115	210	210	DOM;	
13S/02E-11T63	PRUNEDALE	7/31/73	C.F. DOUGHERTY	8	280	320	328	DOM	
13S/02E-12C50	PRUNEDALE	7/18/69	C.F. DOUGHERTY	12	202	262	272	IRR;	
13S/02E-12D01	PRUNEDALE	8/24/59	ASH & SONS	12	216	396	396	IRR;	
13S/02E-12G01	PRUNEDALE			8			260	DOM;	
13S/02E-12G50	PRUNEDALE	2/15/89	ASH & SONS	5	565	605	620	DOM;	
13S/02E-12G51	PRUNEDALE	12/28/67	ASH & SONS	6	366	416	445	DOM;	
13S/02E-12H01	PRUNEDALE	8/12/50	C.F. DOUGHERTY	8	202	247	250	DOM;	
13S/02E-12H02	PRUNEDALE							DOM;	
13S/02E-12H03	PRUNEDALE	3/22/66		8			284	DOM;	
13S/02E-12H50	PRUNEDALE	8/12/50	C.F. DOUGHERTY	10	202	247	250	DOM;	
13S/02E-12H51	PRUNEDALE	11/29/84	C.F. DOUGHERTY	8	288	328	336	DOM;	
13S/02E-12J01	PRUNEDALE	9/27/54	C.F. DOUGHERTY	8	240	272	280	DOM;	
13S/02E-12J02	PRUNEDALE	5/27/66	C.F. DOUGHERTY	12	212	272	280	DOM;	
13S/02E-12J50	PRUNEDALE	6/23/89	ASH & SONS	5	300	340	380	DOM;	
13S/02E-12K01	PRUNEDALE	6/10/55	C.F. DOUGHERTY	8	169	201	205	DOM;	
13S/02E-12K02	PRUNEDALE			8	200	300	350	DOM;	
13S/02E-12K03	PRUNEDALE						252	DOM;	
13S/02E-12K04	PRUNEDALE							DOM;	
13S/02E-12K50	PRUNEDALE	11/20/60	SALINAS PUMP CO	8	200	300	300	DOM;	
13S/02E-12K51	PRUNEDALE	9/19/79	ASH & SONS	10	260	300	320	DOM;	
13S/02E-12K52	PRUNEDALE	5/1/70	C.F. DOUGHERTY	8	60	100	108	DOM;	
13S/02E-12K53	PRUNEDALE	11/25/92	ASH & SONS	6	317	357	357	DOM	
13S/02E-12L01	PRUNEDALE			12	232	272	276	DOM;	
13S/02E-12L02	PRUNEDALE	12/10/85	ASH & SONS	8	340	380	460	DOM;	
13S/02E-12L50	PRUNEDALE	3/9/63	C.F. DOUGHERTY	8	287	387	387	DOM;	
13S/02E-12L50B	PRUNEDALE	3/9/63	C.F. DOUGHERTY	8	287	388	388	DOM;	
13S/02E-12L51	PRUNEDALE	4/27/54	C.F. DOUGHERTY	8	240	272	280	DOM;	
13S/02E-12L52	PRUNEDALE	4/1/93	ASH & SONS				253		DES
13S/02E-12L53	PRUNEDALE	3/26/93	ASH & SONS	5	330	370	370	DOM	
13S/02E-12M50	PRUNEDALE	5/4/78	C.F. DOUGHERTY	10	398	438	448	DOM;	
13S/02E-12N50	PRUNEDALE	4/17/68	THE PUMP SHOP		148	168	196	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-12R50	PRUNEDALE	3/17/87	ASH & SONS	5	300	340	344	DOM;	
13S/02E-12R51	PRUNEDALE	4/26/82	ASH & SONS	5	215	255	260	DOM;	
13S/02E-12T50	PRUNEDALE	3/12/58	C.F. DOUGHERTY	8	172	212	220	DOM;	
13S/02E-12T51	PRUNEDALE	1/27/73	ASH & SONS	7	219	255	265	DOM;	
13S/02E-12T52	PRUNEDALE	2/19/57	C.F. DOUGHERTY	8	252	292	300	IRR;	
13S/02E-12T53	PRUNEDALE	3/29/71	C.F. DOUGHERTY	8	252	292	300	DOM;	
13S/02E-12T54	PRUNEDALE	7/27/55	C.F. DOUGHERTY	8	64	96	104	DOM;	
13S/02E-12T55	PRUNEDALE	7/13/70	C.F. DOUGHERTY	8	200	240	248	DOM;	
13S/02E-12T56	PRUNEDALE	5/11/64	C.F. DOUGHERTY	10	232	272	276	DOM;	
13S/02E-12T57	PRUNEDALE	12/11/80	ASH & SONS	5	300	340	360	DOM;	
13S/02E-12T58	PRUNEDALE	3/31/54	C.F. DOUGHERTY	8	124	156	184	DOM;	
13S/02E-12T59	PRUNEDALE	1/2/75	ASH & SONS	7	378	410	430	DOM;	
13S/02E-12T60	PRUNEDALE	7/15/68	ASH & SONS	6	296	336	370	DOM;	
13S/02E-12T61	PRUNEDALE	10/16/75	ASH & SONS	7	331	363	370	DOM;	
13S/02E-12T62	PRUNEDALE	6/20/84	ASH & SONS	5	360	400	409	DOM;	
13S/02E-12T63	PRUNEDALE	9/5/80	ASH & SONS	5	250	290	312	DOM;	
13S/02E-12T64	PRUNEDALE	2/20/66	MELS DRILLING	6	295	355	355	DOM;	
13S/02E-12T65	PRUNEDALE	10/11/63	C.F. DOUGHERTY	10	192	252	260	DOM;	
13S/02E-12T66	PRUNEDALE	10/8/76	ASH & SONS	6	368	400	420	DOM;	
13S/02E-12T68	PRUNEDALE	12/9/74	SALINAS PUMP CO	6	180	300	320	DOM;	
13S/02E-12T69	PRUNEDALE	9/7/59	ASH & SONS	8	200	300	300	DOM;	
13S/02E-12T70	PRUNEDALE	3/27/64	C.F. DOUGHERTY	8	160	200	208	DOM;	
13S/02E-12T71	PRUNEDALE	10/27/73	ASH & SONS	7	347	383	390	DOM;	
13S/02E-12T72	PRUNEDALE	2/4/56	C.F. DOUGHERTY	10	324	364	376	DOM;	
13S/02E-12T73	PRUNEDALE	6/18/76	ASH & SONS	6	200	252	250	DOM;	
13S/02E-13A50	PRUNEDALE	8/10/91	ASH & SONS	5			260		
13S/02E-13C01	PRUNEDALE	5/24/74	ASH & SONS	66	212	240	240	DOM	
13S/02E-13C02	PRUNEDALE	12/26/72	ASH & SONS	7	240	276	290	DOM;	
13S/02E-13C03	PRUNEDALE							DOM;	
13S/02E-13C04	PRUNEDALE						180	DOM	DESTROYED
13S/02E-13C50	PRUNEDALE	11/13/87	ASH & SONS	5	240	280	285	DOM;	
13S/02E-13C51	PRUNEDALE	9/23/93	DOUGHERTY PUMP & DRILLING	5	180	240	240	DOM	
13S/02E-13D50	PRUNEDALE	8/18/92	ASH & SONS	5	384	424	424	DOM	
13S/02E-13E01	PRUNEDALE			6			250	DOM;	
13S/02E-13F01	PRUNEDALE			7			230	DOM;	
13S/02E-13F50	PRUNEDALE	7/26/83	ASH & SONS	5	280	320	320	DOM;	
13S/02E-13F51	PRUNEDALE	8/28/81	ASH & SONS	5	170	200	203	DOM;	
13S/02E-13G01	PRUNEDALE	12/6/72	SALINAS PUMP CO	12	248	288	300	DOM;	
13S/02E-13G50	PRUNEDALE	6/10/88	ASH & SONS	5	410	450	456	DOM;	
13S/02E-13G51	PRUNEDALE	10/7/89	ASH & SONS	5	280	320	340	DOM;	
13S/02E-13H50	PRUNEDALE	1/13/82	ASH & SONS	5	240	300	305	DOM;	
13S/02E-13H51	PRUNEDALE	4/17/81	ASH & SONS	10	325	385	385	DOM;	
13S/02E-13K01	PRUNEDALE			5			270	DOM;	
13S/02E-13K50	PRUNEDALE	5/28/81	ASH & SONS	5	240	280	287	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-13K51	PRUNEDALE	8/28/79	ASH & SONS	6	248	280	290	DOM;	
13S/02E-13K52	PRUNEDALE	5/28/75	SALINAS PUMP CO	10	312	412	455	IRR;	
13S/02E-13L50	PRUNEDALE	11/25/77	ASH & SONS	7	150	180	190	DOM;	
13S/02E-13L51	PRUNEDALE	7/29/67	ASH & SONS	6	176	212	246	DOM;	
13S/02E-13L52	PRUNEDALE	10/31/85	ASH & SONS	6	160	200	220	DOM;	
13S/02E-13L53	PRUNEDALE	6/14/77	ASH & SONS	7	148	180	180	DOM;	
13S/02E-13L54	PRUNEDALE	12/31/86	ASH & SONS	5	140	180	190	DOM;	
13S/02E-13M50	PRUNEDALE	6/14/56	C.F. DOUGHERTY	10	132	192	200	DOM;IRR;	
13S/02E-13M51	PRUNEDALE	10/5/92	ASH & SONS	6	280	320	320	DOM	
13S/02E-13N01	PRUNEDALE	6/14/56	C.F. DOUGHERTY	10	132	192	200	IRR;	
13S/02E-13N50	PRUNEDALE	9/21/81	ASH & SONS	5	120	160	170	DOM;	
13S/02E-13N51	PRUNEDALE	12/2/81	ASH & SONS	8	140	190	190	IRR;	
13S/02E-13N52	PRUNEDALE	2/28/85	ASH & SONS	8	160	200	215	DOM;	
13S/02E-13P01	PRUNEDALE			6			110	DOM;	
13S/02E-13P50	PRUNEDALE	10/16/87	ASH & SONS	5	140	180	190	DOM;	
13S/02E-13P51	PRUNEDALE	10/30/87	ASH & SONS	6	160	200	215	DOM;	
13S/02E-13Q01	PRUNEDALE	10/5/49	C.F. DOUGHERTY	8	234	255	264	DOM;	
13S/02E-13Q50	PRUNEDALE	5/10/90	ASH & SONS	5	260	300	320	DOM;	
13S/02E-13Q51	PRUNEDALE	6/20/86	ASH & SONS	5	120	160	165	DOM;	
13S/02E-13T50	PRUNEDALE	3/11/76	ASH & SONS	7	248	280	295	DOM;	
13S/02E-13T51	PRUNEDALE	3/15/65	ASH & SONS	6	176	216	249	DOM;	
13S/02E-13T52	PRUNEDALE	1/30/72	C.F. DOUGHERTY	8	144	184	192	DOM;	
13S/02E-13T53	PRUNEDALE	6/5/76	ASH & SONS	6	418	450	465	DOM;	
13S/02E-13T54	PRUNEDALE	6/8/76	ASH & SONS	6	368	400	415	DOM;	
13S/02E-13T55	PRUNEDALE	2/28/61	C.F. DOUGHERTY	8	164	204	212	IRR;	
13S/02E-13T56	PRUNEDALE	3/15/72	ASH & SONS	10	130	140	145	DOM;	
13S/02E-13T57	PRUNEDALE	7/25/75	ASH & SONS	16	347	470	498	IRR;	
13S/02E-13T58	PRUNEDALE	4/14/76	C.F. DOUGHERTY	10	248	288	296	DOM;	
13S/02E-13T59	PRUNEDALE	12/11/75	ASH & SONS	7	312	350	360	DOM;	
13S/02E-13T61	PRUNEDALE	4/18/80	ASH & SONS	5	116	156	165	DOM;	
13S/02E-13T62	PRUNEDALE	2/3/54	C.F. DOUGHERTY	8	116	148	156	DOM;	
13S/02E-13T63	PRUNEDALE	12/10/75	ASH & SONS	7	228	260	275	DOM;	
13S/02E-13T64	PRUNEDALE	2/1/85	ASH & SONS	5	310	350	370	DOM;	
13S/02E-13T65	PRUNEDALE	5/4/71	ASH & SONS	7	334	374	389	DOM;	
13S/02E-13T66	PRUNEDALE	6/12/70	C.F. DOUGHERTY	8	140	180	188	DOM;	
13S/02E-13T67	PRUNEDALE	6/2/75	C.F. DOUGHERTY	8	132	172	180	DOM;	
13S/02E-13T68	PRUNEDALE	2/18/72	ASH & SONS	6	220	256	265	DOM;	
13S/02E-13T69	PRUNEDALE	6/11/65	C.F. DOUGHERTY	8	240	280	288	DOM;	
13S/02E-13T70	PRUNEDALE	10/19/54	C.F. DOUGHERTY	8	60	92	100	DOM;	
13S/02E-13T71	PRUNEDALE	2/24/60	ASH & SONS				2898	OIL;	
13S/02E-13T72	PRUNEDALE	7/31/91	ASH & SONS	5	338	378	378	DOM	
13S/02E-14A50	PRUNEDALE	10/6/89	ASH & SONS	5	296	336	360	DOM;	
13S/02E-14A51	PRUNEDALE	12/15/87	ASH & SONS	5	360	400	405	DOM;	
13S/02E-14A52	PRUNEDALE	1/1/71	ASH & SONS	6			260		DES

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-14A53	PRUNEDALE	4/2/81	ASH & SONS	8	343	393	400	DOM;	
13S/02E-14B50	PRUNEDALE	10/26/77	SALINAS PUMP CO	8	160	365	405	DOM;IRR;	
13S/02E-14B51	PRUNEDALE	4/17/84	ASH & SONS	5	310	350	370	DOM;	
13S/02E-14B52	PRUNEDALE	9/7/89	ASH & SONS	5	340	380	390	DOM;	
13S/02E-14B53	PRUNEDALE	6/16/59	C.F. DOUGHERTY	12	268	308	316	DOM;	
13S/02E-14B54	PRUNEDALE	9/13/88	ASH & SONS	5	257	297	335	DOM;	
13S/02E-14C01	PRUNEDALE	5/7/59	C.F. DOUGHERTY	10	176	236	244	IRR;	
13S/02E-14C50	PRUNEDALE	8/25/88	C.F. DOUGHERTY				235		DES
13S/02E-14C51	PRUNEDALE	9/9/70	C.F. DOUGHERTY	8	272	312	320	DOM;	
13S/02E-14C52	PRUNEDALE	9/14/76	ASH & SONS	7	248	280	285	DOM;	
13S/02E-14C53	PRUNEDALE	11/25/49	C.F. DOUGHERTY	8	114	135	144	DOM;	
13S/02E-14C54	PRUNEDALE	3/23/84	C.F. DOUGHERTY	8	300	340	348	DOM;	
13S/02E-14C55	PAJARO-SPRINGFIELD	1/22/92	ASH & SONS				126		DES;
13S/02E-14C56	PAJARO-SPRINGFIELD	1/16/92	ASH & SONS	5	145	185	185	DOM;	
13S/02E-14D01	PRUNEDALE	9/14/79	ASH & SONS	10	130	160	160	DOM;	
13S/02E-14D02	PRUNEDALE		MCCULLUM					DOM;	
13S/02E-14D50	PRUNEDALE	3/16/81	ASH & SONS	5	150	180	200	DOM;	
13S/02E-14E01	PRUNEDALE	3/1/69	C.F. DOUGHERTY	8	104	144	152	DOM;	
13S/02E-14E02	PRUNEDALE			9			146	DOM;	
13S/02E-14E03	PRUNEDALE			7	158	190	190	DOM;	
13S/02E-14E50	PRUNEDALE	11/3/82	ASH & SONS	6	175	215	225	DOM;	
13S/02E-14E51	PRUNEDALE	8/28/64	C.F. DOUGHERTY	10	216	256	224	DOM;	
13S/02E-14E52	PRUNEDALE	5/6/86	ASH & SONS	5	120	160	160	DOM;	
13S/02E-14E53	PRUNEDALE	4/25/90	ASH & SONS	5	100	140	145	DOM;	
13S/02E-14E54	PRUNEDALE	9/20/69	C.F. DOUGHERTY	8	92	132	140	DOM;	
13S/02E-14F01	PRUNEDALE	9/4/63	C.F. DOUGHERTY	8	52	92	100	DOM;	
13S/02E-14F50	PRUNEDALE	2/24/88	ASH & SONS	8	240	260	320	IRR;	
13S/02E-14F51	PRUNEDALE	9/11/81	ASH & SONS	8	120	160	160	DOM;	
13S/02E-14G01	PRUNEDALE								
13S/02E-14G50	PRUNEDALE	1/23/86	ASH & SONS	6	340	400	420	DOM;	
13S/02E-14H01	PRUNEDALE							DOM;	
13S/02E-14H50	PRUNEDALE	3/2/79	ASH & SONS	6	280	312	312	DOM;	
13S/02E-14H51	PRUNEDALE	10/30/85	ASH & SONS	6	360	400	420	DOM;	
13S/02E-14H52	PRUNEDALE	6/13/86	ASH & SONS	5	380	420	420	DOM;	
13S/02E-14J50	PRUNEDALE	11/3/90	ASH & SONS	5	340	380	400	DOM;	
13S/02E-14J51	PRUNEDALE	10/7/86	ASH & SONS	8	340	380	415	DOM;	
13S/02E-14J52	PRUNEDALE	4/10/81	ASH & SONS	6	381	421	431	DOM;	
13S/02E-14J53	PRUNEDALE	3/29/74	ASH & SONS	16	375	420	445	IRR;	
13S/02E-14L01	PRUNEDALE							DOM;	
13S/02E-14L50	PRUNEDALE	5/19/89	ASH & SONS	5	245	285	302	DOM;	
13S/02E-14L51	PRUNEDALE	10/31/88	ASH & SONS	5	260	300	305	DOM	
13S/02E-14M01	PRUNEDALE			10			142	DOM;	
13S/02E-14M02	PRUNEDALE							DOM;	
13S/02E-14M50	PRUNEDALE	4/14/89	ASH & SONS	5	260	300	302	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-14M51	PRUNEDALE	6/10/88	ASH & SONS	5	260	300	301	DOM;	
13S/02E-14M52	PRUNEDALE	3/10/89	ASH & SONS	5	254	294	303	DOM;	
13S/02E-14M53	PRUNEDALE	12/20/50	C.F. DOUGHERTY	8	60	81	90	DOM;	
13S/02E-14N50	PRUNEDALE	5/10/82	ASH & SONS	6	115	155	170	DOM;	
13S/02E-14P01	PRUNEDALE							DOM;	
13S/02E-14Q50	PRUNEDALE	8/30/79	ASH & SONS	5	160	200	210	DOM;	
13S/02E-14Q51	PRUNEDALE	4/19/83	ASH & SONS	6	164	204	215	IRR;	
13S/02E-14T50	PRUNEDALE		ROBINETT & SONS	6	230	312	312	DOM;	
13S/02E-14T51	PRUNEDALE	9/19/74	ASH & SONS	6	304	340	355	DOM;	
13S/02E-14T52	PRUNEDALE	12/12/61	C.F. DOUGHERTY	8	86	126	132	DOM;	
13S/02E-14T53	PRUNEDALE	9/29/62	C.F. DOUGHERTY	8	280	320	328	DOM;	
13S/02E-14T54	PRUNEDALE	10/17/73	ASH & SONS	7	293	329	340	DOM;	
13S/02E-14T55	PRUNEDALE	3/10/66	FREEDOM GEN REPAIR & PUMP	8	128	160	164	DOM;	
13S/02E-14T56	PRUNEDALE	6/3/53	SALINAS PUMP CO	12	160	290	290	IRR;	
13S/02E-14T57	PRUNEDALE	7/12/76	C.F. DOUGHERTY	10	277	357	365	DOM;	
13S/02E-14T58	PRUNEDALE	9/10/76	ASH & SONS	6	281	313	363	DOM;	
13S/02E-14T59	PRUNEDALE	12/17/80	ASH & SONS	6	260	300	305	DOM;	
13S/02E-14T60	PRUNEDALE	3/29/55	C.F. DOUGHERTY	8	272	312	320	DOM;	
13S/02E-14T61	PRUNEDALE	8/31/61	ASH & SONS	6	42	80	93	DOM;IRR;	
13S/02E-14T62	PRUNEDALE	7/15/80	C.F. DOUGHERTY	10	332	372	380	DOM;	
13S/02E-14T63	PRUNEDALE	10/20/54	NUNES	12	172	258	270	IRR;	
13S/02E-14T64	PRUNEDALE	2/5/80	ASH & SONS	8	200	240	248	DOM;	
13S/02E-14T65	PRUNEDALE	7/14/53	C.F. DOUGHERTY	10	69	120	129	DOM;	
13S/02E-14T66	PRUNEDALE	5/20/71	C.F. DOUGHERTY	8	252	292	300	DOM;	
13S/02E-14T67	PRUNEDALE	7/16/80	ASH & SONS	6	316	348	360	DOM;	
13S/02E-14T68	PRUNEDALE	10/18/73	C.F. DOUGHERTY	8	132	172	180	DOM;	
13S/02E-14T69	PRUNEDALE	12/26/62	C.F. DOUGHERTY	8	88	128	136	DOM;	
13S/02E-14T70	PRUNEDALE	10/13/78	SALINAS PUMP CO	8	140	300	300	DOM;	
13S/02E-14T71	PRUNEDALE	5/27/76	CLIFFORD PUMP & WELL	6	137	187	197	DOM	
13S/02E-14T72	PRUNEDALE	3/13/80	ASH & SONS	6	308	340	348	DOM;	
13S/02E-14T73	PRUNEDALE	1/3/76	ASH & SONS	6	118	150	160	DOM;	
13S/02E-14T74	PRUNEDALE	2/8/74	C.F. DOUGHERTY	8	300	340	348	DOM;	
13S/02E-14T75	PRUNEDALE	12/11/79	ASH & SONS	6	135	175	175	DOM;	
13S/02E-14T76	PRUNEDALE	3/19/64	C.F. DOUGHERTY	8	112	152	160	DOM;	
13S/02E-14T77	PRUNEDALE	6/28/66	C.F. DOUGHERTY	8	244	284	292	DOM;	
13S/02E-14T78	PRUNEDALE	10/26/79	ASH & SONS	5	180	220	220	DOM;	
13S/02E-14T79	PRUNEDALE	3/27/56	C.F. DOUGHERTY	8	232	272	280	DOM;	
13S/02E-14T80	PRUNEDALE	10/19/74	ASH & SONS	6	308	340	355	DOM;	
13S/02E-14T81	PRUNEDALE	11/29/75	ASH & SONS	7	131	163	175	DOM;	
13S/02E-14T82	PRUNEDALE	4/30/71	C.F. DOUGHERTY	10			156	DOM;	
13S/02E-14T83	PRUNEDALE	2/22/72	ASH & SONS	6	130	166	175	DOM;	
13S/02E-14T84	PRUNEDALE	6/5/69	FREEDOM GEN REPAIR & PUMP	20	346	406	406	IRR;	
13S/02E-14T85	PRUNEDALE	6/7/76	CLIFFORD PUMP & WELL	12	180	236	244	IRR	
13S/02E-14T86	PRUNEDALE	3/8/76	ASH & SONS	7	318	350	360	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-14T87	PRUNEDALE	5/12/75	SALINAS PUMP CO	12	432	504	524	DOM;IRR;	
13S/02E-14T88	PRUNEDALE		ROBINETT & SONS	6	230	312	312	DOM;	
13S/02E-14T89	PRUNEDALE	6/3/53	SALINAS PUMP CO	12	160	290	290	IRR;	
13S/02E-14T90	PRUNEDALE	7/14/53	C.F. DOUGHERTY	10	69	120	129	DOM;	
13S/02E-14T91	PRUNEDALE	10/20/54	NUNES	12	172	258	270	IRR;	
13S/02E-15A50	PRUNEDALE	9/24/64	SALINAS PUMP CO	10	160	300	300	IRR;	
13S/02E-15F01	PRUNEDALE								
13S/02E-15H50	PRUNEDALE	12/22/87	ASH & SONS	5	375	435	440	DOM;	
13S/02E-15H51	PRUNEDALE	5/8/92	ASH & SONS	5	320	360	360	DOM;	
13S/02E-15H52	PRUNEDALE	10/15/85	ASH & SONS	5	110	150	165	DOM;	DES;
13S/02E-15J01	PRUNEDALE	1/1/58					75		
13S/02E-15J50	PRUNEDALE	9/22/77	C.F. DOUGHERTY	12	146	206	216	IRR;	
13S/02E-15J51	PRUNEDALE	5/24/68	C.F. DOUGHERTY	8	92	132	140	DOM;	
13S/02E-15J52	PRUNEDALE	4/24/92	ASH & SONS	5	120	160	160	DOM;	
13S/02E-15J53	PRUNEDALE	5/4/92	ASH & SONS				100		DES;
13S/02E-15K51	PRUNEDALE	12/9/86	ASH & SONS	5	120	160	165	DOM;	
13S/02E-15K52	PRUNEDALE	5/3/73	ASH & SONS	7	60	80	85	DOM;	
13S/02E-15K53	PRUNEDALE	11/8/85	C.F. DOUGHERTY	10	152	232	260	IRR;	
13S/02E-15L01	MORO COJO		PRECISION DRILLING	12	245	618	910	IND;	
13S/02E-15M01	PRUNEDALE		PRECISION DRILLING				1014	MUN;	
13S/02E-15M02	MORO COJO	8/8/62	PRECISION DRILLING	14	400	750	750	IND;	
13S/02E-15M03	PRUNEDALE	10/2/84	SALINAS PUMP CO		810	1050	1050	IND;	
13S/02E-15M50	PRUNEDALE	9/13/84	C.F. DOUGHERTY	8	152	192	200	DOM;	
13S/02E-15M51	PRUNEDALE	12/1/74	C & N PUMP & WELL CO		309	844	930	IND	
13S/02E-15M52	PRUNEDALE	7/9/73	C.F. DOUGHERTY	8	124	164	172	DOM;	
13S/02E-15M53	PRUNEDALE	11/30/71	C & N PUMP & WELL CO	14	305	876	955	IND	
13S/02E-15Q01	PRUNEDALE			24	246	0	340	DOM;	
13S/02E-15Q50	PRUNEDALE	7/21/82	ASH & SONS	6	160	200	215	DOM;	
13S/02E-15R01	PRUNEDALE	8/30/74	DOUGHERTY PUMP & DRILLING	8	124	164	172	DOM;	
13S/02E-15R50	PRUNEDALE	3/12/87	ASH & SONS	5	140	180	185	DOM;	
13S/02E-15R51	PRUNEDALE	10/18/84	ASH & SONS	6	140	180	190	DOM;	
13S/02E-15R52	PRUNEDALE	5/4/82	ASH & SONS	6	120	160	178	DOM;IRR;	
13S/02E-15T50	PRUNEDALE	10/8/67	ASH & SONS	6	125	157	168	DOM;	
13S/02E-15T51	MORO COJO	9/12/77	C.F. DOUGHERTY	12	470	550	560	IRR;	
13S/02E-15T52	PRUNEDALE	5/27/70	CLIFFORD PUMP & WELL	10	144	172	180	DOM	
13S/02E-15T53	PRUNEDALE	12/4/75	ASH & SONS	7	120	152	165	DOM;	
13S/02E-15T54	PRUNEDALE	7/30/60	C.F. DOUGHERTY	8	96	136	140	DOM;	
13S/02E-16B01	PRUNEDALE							DOM;	
13S/02E-16D01	MORO COJO	6/22/63	VALLEY PUMP	12	124	220	220	IRR;	ABAN
13S/02E-16E01	MORO COJO		ALSOP & SON	12			174	IRR;	DES;
13S/02E-16F01	MORO COJO	9/30/40	ALEXANDER	12	127	199	222	IRR;	
13S/02E-16L01	PRUNEDALE						80	DOM;	
13S/02E-16R50	PAJARO-SPRINGFIELD	6/13/68	THE PUMP SHOP	12	128	148	152	DOM;	
13S/02E-16T50	PAJARO-SPRINGFIELD	7/28/55	C.F. DOUGHERTY	10	80	140	148	IRR;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-16T51	MORO COJO	6/8/69	WESTERN DRILLING	12	118	230	250	DOM;	
13S/02E-16T52	PAJARO-SPRINGFIELD	8/8/59	C.F. DOUGHERTY	8	32	72	80	DOM;	
13S/02E-16T53	MORO COJO	12/1/67	C.F. DOUGHERTY	12	100	180	200	DOM;	
13S/02E-16T54	PAJARO-SPRINGFIELD	5/25/67	C.F. DOUGHERTY	12	162	222	232	DOM;	
13S/02E-17B50	MORO COJO	2/16/74	ASH & SONS	20	520	720	745	IND;	
13S/02E-17C01	MORO COJO	3/1/45		20			900	IND;	ABAN;
13S/02E-17D50	MORO COJO	1/19/87	MITTELHAUSER CORP	2	29	39	39	MON	
13S/02E-17D51	MORO COJO	1/19/87	MITTELHAUSER CORP	2	33	43	45	MON	
13S/02E-17D52	MORO COJO	1/23/87	MITTELHAUSER CORP	2	31	41	41	MON	
13S/02E-17D53	MORO COJO	1/16/87	MITTELHAUSER CORP	2	27	37	40	MON	
13S/02E-17E50	MORO COJO	1/23/87	MITTELHAUSER CORP	4	22	32	32	MON	
13S/02E-17E51	MORO COJO	7/13/88	MITTELHAUSER CORP				60		DES
13S/02E-17E52	MORO COJO	1/12/87	MITTELHAUSER CORP	2	43	47	47	MON	
13S/02E-17E53	MORO COJO	1/13/87	MITTELHAUSER CORP	2	19	39	43	MON	
13S/02E-17E54	MORO COJO	10/25/85	WOODWARD-CLYDE	4	15	34	37	MON	
13S/02E-17E55	PERCHED	7/14/88	MITTELHAUSER CORP	4	23	38	39	MON	
13S/02E-17E56	MORO COJO	7/13/88	MITTELHAUSER CORP				57		DES
13S/02E-17E57	PERCHED	7/13/88	MITTELHAUSER CORP	4	22	32	34	MON	
13S/02E-17E58	MORO COJO	1/22/87	MITTELHAUSER CORP	2	25	35	37	MON	
13S/02E-17E59	MORO COJO	1/27/87	MITTELHAUSER CORP	4	73	83	85	MON	
13S/02E-17E60	MORO COJO	7/13/88	MITTELHAUSER CORP				56		DES
13S/02E-17E61	MORO COJO	1/26/87	MITTELHAUSER CORP	4	29	34	40	MON	
13S/02E-17E62	MORO COJO	1/26/87	MITTELHAUSER CORP	8	27	56	65	TEST WELL	
13S/02E-17E63	MORO COJO	8/23/85	WOODWARD-CLYDE	2	12	43	51	TEST WELL	
13S/02E-17E64	MORO COJO	9/12/85	WOODWARD-CLYDE	4	18	49	51	TEST WELL	
13S/02E-17F50	PERCHED	7/12/88	MITTELHAUSER CORP	4	22	32	34	MON	
13S/02E-17F51	MORO COJO	7/12/88	MITTELHAUSER CORP				50		DES
13S/02E-17F52	MORO COJO	1/21/87	MITTELHAUSER CORP	2	19	29	31	MON	
13S/02E-17F53	MORO COJO	1/20/87	MITTELHAUSER CORP	2	26	36	37	MON	
13S/02E-17F54	MORO COJO	1/8/87	MITTELHAUSER CORP	2	81	96	97	MON	
13S/02E-17G01	MORO COJO	2/1/50	MOSS	14	700	950	950	IND;	
13S/02E-17G02	MORO COJO	2/1/50	MOSS	14	90	160	170	IND;	
13S/02E-17G03	MORO COJO	9/30/51	MOSS	12	696	912	912	IND;	
13S/02E-17G04	MORO COJO	2/1/50	MOSS	14	120	200	200	IND;	
13S/02E-17H01	MORO COJO	1/1/55		12			220	IRR;	ABAN;
13S/02E-17H02	MORO COJO	2/1/50	MOSS	24	450	950	1273	IND;	
13S/02E-17H03	MORO COJO	1/8/69						IRR;	
13S/02E-17H50	MORO COJO	1/28/87	MITTELHAUSER CORP	2	28	38	40	MON	
13S/02E-17J01	MORO COJO	5/12/53	NUNES WELL		140	190	250	IRR;	ABAN
13S/02E-17M01	MORO COJO	9/24/49	SAN JOSE DRILLING		488	644	816	IND;	
13S/02E-17M02	MORO COJO							DOM;	ABAN;
13S/02E-17P01	MORO COJO	10/29/49	ALSOP	10			135	IND;	
13S/02E-17R01	MORO COJO	3/1/45		12				IRR;	ABAN;
13S/02E-18A50	MORO COJO	1/19/87	MITTELHAUSER CORP	2	28	38	40	MON	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-18A51	MORO COJO	1/15/87	MITTELHAUSER CORP	2	29	39	39	MON	
13S/02E-18B50	MORO COJO	1/7/81	MAGGIORA BROS	8	13	28	28		
13S/02E-18H50	MORO COJO	1/14/87	MITTELHAUSER CORP	4	22	32	32	MON	
13S/02E-18H51	MORO COJO	1/14/87	MITTELHAUSER CORP	4	42	52	73	MON	
13S/02E-18H52	MORO COJO	1/14/87	MITTELHAUSER CORP	4	32	42	42	MON	
13S/02E-18J50	MORO COJO	11/21/90	MAGGIORA BROS				15		DESTROYED
13S/02E-18J51	MORO COJO	11/21/90	MAGGIORA BROS				15		DES
13S/02E-18J52	MORO COJO	11/21/90	MAGGIORA BROS	2			15	MON	DESTROYED
13S/02E-18Q01	MORO COJO							MUN;	ABAN;
13S/02E-18Q50	MORO COJO	4/15/50	C.F. DOUGHERTY	8	120	141	150	DOM;	
13S/02E-18T50	MORO COJO	12/29/71	ASH & SONS	2	20	30	30		
13S/02E-18T51	MORO COJO	2/18/76	ASH & SONS	6	18	28	28		
13S/02E-18T52	MORO COJO	6/15/79	MAGGIORA BROS	6	13	32	33		
13S/02E-18T53	MORO COJO	12/21/71	ASH & SONS	2	18	28	28		
13S/02E-19A01	S V GENERAL								
13S/02E-19T51	S V GENERAL	11/22/59	C.F. DOUGHERTY	8	32	72	80	DOM;	
13S/02E-20L02	S V GENERAL								
13S/02E-21G01	MORO COJO	6/1/47	ALEXANDER	16	263	406	406	IRR;	ABAN;
13S/02E-21G02	MORO COJO	1/1/43	DUER		375	400	425	IRR;	
13S/02E-21H01									
13S/02E-21L01	S V GENERAL								
13S/02E-22B50	PRUNEDALE	7/1/82	ASH & SONS	6	120	160	180	DOM;	
13S/02E-22B51	PRUNEDALE	9/25/85	ASH & SONS	6	110	150	154	IRR;	
13S/02E-22H50	PRUNEDALE	12/27/77	MAGGIORA BROS	26	160	210	625	IRR;	
13S/02E-22T50	PRUNEDALE	9/30/71	ASH & SONS	6	340	380	380	DOM;	
13S/02E-22T51	PRUNEDALE	2/26/87	ASH & SONS	5	180	220	226	DOM;	
13S/02E-23A50	PRUNEDALE	12/4/84	ASH & SONS	5	120	160	170	DOM;	
13S/02E-23A51	PRUNEDALE	11/16/87	ASH & SONS	5	140	180	185	DOM;	
13S/02E-23A52	PRUNEDALE	11/10/76	ASH & SONS	6	253	285	295	DOM;	
13S/02E-23A53	PRUNEDALE	8/5/91	CHAPPELL PUMP & SUPPLY	8	158	238	258	DOM	
13S/02E-23B01	PRUNEDALE	8/4/82	ASH & SONS	5	115	155	170	DOM;	
13S/02E-23B02	PRUNEDALE	12/11/69	ASH & SONS	6	180	220	234	DOM;	
13S/02E-23B50	PRUNEDALE	9/13/71	C.F. DOUGHERTY	8	92	132	140	DOM;	
13S/02E-23B51	PRUNEDALE	10/30/72	ASH & SONS	7	200	256	265	DOM;	
13S/02E-23D01	PRUNEDALE							DOM;	
13S/02E-23D02	PRUNEDALE							DOM;	
13S/02E-23D50	PRUNEDALE	3/5/84	ASH & SONS	5	160	200	220	DOM;	
13S/02E-23D51	PRUNEDALE	7/10/91	ASH & SONS	5	140	180	180	DOM	
13S/02E-23E01	PRUNEDALE	5/13/71	ASH & SONS	7	156	196	204	DOM;	
13S/02E-23E50	PRUNEDALE	8/13/85	ASH & SONS	5	160	200	205	DOM;	
13S/02E-23F01	PRUNEDALE	12/1/56	C.F. DOUGHERTY	12	758	838	860	IND;	
13S/02E-23F02	PRUNEDALE			6			150	DOM;	
13S/02E-23F03	PRUNEDALE			13			175	DOM;	
13S/02E-23F50	PRUNEDALE	12/2/83	ASH & SONS	5	260	300	300	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-23F51	PRUNEDALE	5/21/90	ASH & SONS	5	140	180	190	DOM;	
13S/02E-23F52	PRUNEDALE	11/7/52	NUNES	10	159	201	210	DOM;	
13S/02E-23F54	PERCHED	5/6/92	GILROY PUMP & DRILLING				61		DES
13S/02E-23G50	PRUNEDALE	2/9/90	ASH & SONS	6	240	300	320	DOM;	
13S/02E-23G51	PRUNEDALE	10/19/87	ASH & SONS	5	160	200	205	DOM;	
13S/02E-23G52	PRUNEDALE	10/4/72	C.F. DOUGHERTY	8	180	320	328	DOM;	
13S/02E-23H01	PRUNEDALE	9/20/65	C.F. DOUGHERTY	8			204	DOM;	DES
13S/02E-23H50	PRUNEDALE	10/12/90	ASH & SONS	5	260	300	303	DOM;	
13S/02E-23H51	PRUNEDALE	7/15/88	ASH & SONS	5	260	300	305	DOM;	
13S/02E-23H53	PRUNEDALE	7/22/92	ASH & SONS	6	350	390	390	DOM	
13S/02E-23K50	PRUNEDALE	9/8/77	ASH & SONS	7	118	160	160	DOM;	
13S/02E-23K51	PRUNEDALE	10/29/52	NUNES	12	128	221	228	DOM;	
13S/02E-23L01	PRUNEDALE	12/14/77	SALINAS PUMP CO	8	98	260	260	DOM;	
13S/02E-23M50	PRUNEDALE	9/15/87	ASH & SONS	5	140	180	183	DOM;	
13S/02E-23M51	PRUNEDALE	5/26/87	ASH & SONS	5	200	240	245	DOM;	
13S/02E-23T50	PRUNEDALE	8/19/75	ASH & SONS	7	128	160	170	DOM;	
13S/02E-23T51	PRUNEDALE	1/25/73	ASH & SONS	7	120	156	175	DOM;	
13S/02E-23T52	PRUNEDALE	12/10/51	NUNES	10	140	240	249	DOM;	
13S/02E-23T53	PRUNEDALE	2/1/78	C.F. DOUGHERTY	10	180	240	248	IRR;	
13S/02E-23T54	PRUNEDALE	5/19/73	ASH & SONS	7	200	236	250		
13S/02E-23T55	PRUNEDALE	2/23/76	C.F. DOUGHERTY	8	172	212	220	DOM;	
13S/02E-23T56	PRUNEDALE	1/21/66	C.F. DOUGHERTY	8	92	132	140	DOM;	
13S/02E-23T57	PRUNEDALE	4/12/74	ASH & SONS	7	240	262	282	DOM;	
13S/02E-23T58	PRUNEDALE	2/13/57	C.F. DOUGHERTY	12	122	222	232	MUN;	
13S/02E-23T59	PRUNEDALE	7/23/78	ASH & SONS	13	283	315	322	DOM;	
13S/02E-23T60	PRUNEDALE	11/28/73	ASH & SONS	7	200	236	245	DOM;	
13S/02E-23T61	PRUNEDALE	5/13/65	C.F. DOUGHERTY	8	196	236	244	DOM;	
13S/02E-23T62	PRUNEDALE	4/19/66	C.F. DOUGHERTY	12	110	190	202	IRR;	
13S/02E-23T63	PRUNEDALE	11/12/59	C.F. DOUGHERTY	8	196	236	244	DOM;	
13S/02E-23T64	PRUNEDALE	11/16/76	ASH & SONS		233	265	265	DOM;	
13S/02E-23T65	PRUNEDALE	5/17/62	C.F. DOUGHERTY	8	204	244	252	DOM;	
13S/02E-23T66	PRUNEDALE	11/25/75	ASH & SONS	7	180	200	210	DOM;	
13S/02E-23T67	PRUNEDALE	6/20/79	ROBINETT & SONS	8	112	292	292	DOM;	
13S/02E-23T68	PRUNEDALE	3/25/77	SALINAS PUMP CO	14	278	494	610	IRR;	
13S/02E-23T69	PRUNEDALE	6/3/55	C.F. DOUGHERTY	8	180	220	228	DOM;IRR;	
13S/02E-24A01	PRUNEDALE	4/28/62	C.F. DOUGHERTY	8	156	196	204	DOM;	
13S/02E-24B01	PRUNEDALE	6/3/49	C.F. DOUGHERTY	8	216	237	246	DOM;	
13S/02E-24B02	PRUNEDALE			8			320	DOM;	
13S/02E-24B03	PRUNEDALE			8			317	DOM;	
13S/02E-24B04	PRUNEDALE				180	320	328	DOM;	
13S/02E-24B50	PRUNEDALE	11/17/89	ASH & SONS	5	260	300	330	DOM;	
13S/02E-24B51	PRUNEDALE	2/3/93	ASH & SONS	5	300	340	340	DOM	
13S/02E-24B52	PRUNEDALE	4/23/93	ASH & SONS	5	310	350	350		DEEP
13S/02E-24C01	PRUNEDALE	9/13/67	ASH & SONS	6	256	296	300	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-24C50	PRUNEDALE	1/13/87	ASH & SONS	5	300	340	350	DOM;	
13S/02E-24C51	PRUNEDALE	10/20/89	ASH & SONS	5	295	335	340	DOM;	
13S/02E-24D50	PRUNEDALE	6/26/67	SALINAS PUMP CO	8	240	380	400	DOM;	
13S/02E-24D51	PRUNEDALE	7/16/86	ASH & SONS	6	300	340	345	DOM;	
13S/02E-24D52	PRUNEDALE	6/26/92	ASH & SONS		357	397	397	DOM	
13S/02E-24E01	PRUNEDALE		MURPHY	10	320	400	400	DOM;	
13S/02E-24E50	PRUNEDALE	9/15/77	ASH & SONS	7	248	280	280	DOM;	
13S/02E-24F01	PRUNEDALE	8/17/84	ASH & SONS	5	260	320	320	DOM;	
13S/02E-24F02	PRUNEDALE			8	264	312	320	DOM;	
13S/02E-24F50	PRUNEDALE	9/7/89	C.F. DOUGHERTY	5	240	300	300	DOM;	
13S/02E-24G51	PRUNEDALE	1/28/88	ASH & SONS	5	260	300	320	DOM;	
13S/02E-24G52	PRUNEDALE	1/26/88	ASH & SONS	5	260	300	320	DOM;	
13S/02E-24N01	PRUNEDALE	3/16/66	SALINAS PUMP CO	12	300	600	678		
13S/02E-24N50	PRUNEDALE	7/13/67	SALINAS PUMP CO	12	300	600	611	DOM;	
13S/02E-24T50	PRUNEDALE	4/17/74	ASH & SONS	6	240	268	282	DOM	
13S/02E-24T51	PRUNEDALE	3/27/73	ASH & SONS	7	172	208	220	DOM;	
13S/02E-24T52	PRUNEDALE	5/9/72	C.F. DOUGHERTY	8	172	212	220	DOM;	
13S/02E-24T53	PRUNEDALE	7/14/61	C.F. DOUGHERTY	8	208	248	256	DOM;	
13S/02E-24T54	PRUNEDALE	6/16/76	SALINAS PUMP CO	14	176	526	676	IRR;	
13S/02E-24T55	PRUNEDALE	7/28/64	C.F. DOUGHERTY	8	172	212	220	DOM;	
13S/02E-24T56	PRUNEDALE	6/24/63	C.F. DOUGHERTY	8	168	208	216	DOM;	
13S/02E-24T57	PRUNEDALE	9/30/64	C.F. DOUGHERTY	10	176	292	300	DOM;	
13S/02E-24T58	PRUNEDALE	2/3/73	ASH & SONS	7	229	265	280	DOM;	
13S/02E-24T59	PRUNEDALE	9/1/76	SALINAS PUMP CO	14	230	620	686	IRR;	
13S/02E-24T60	PRUNEDALE		CLIFFORD PUMP & WELL	10	275	325	571	IRR	
13S/02E-24T61	PRUNEDALE	3/1/67	C.F. DOUGHERTY	8	180	220	228	DOM;	
13S/02E-24T62	PRUNEDALE	7/1/56	NUNES	8	117	167	175		
13S/02E-24T63	PRUNEDALE	8/21/62	C.F. DOUGHERTY	8	84	124	132	DOM;	
13S/02E-24T64	PRUNEDALE	3/7/79	ASH & SONS	7	280	312	330	DOM;	
13S/02E-24T65	PRUNEDALE	5/3/76	ASH & SONS	66	208	240	240	DOM;	
13S/02E-24T66	PRUNEDALE	10/17/53	C.F. DOUGHERTY	8	212	244	252	DOM;	
13S/02E-24T67	PRUNEDALE	11/27/53	C.F. DOUGHERTY	8	157	201	205	DOM;	
13S/02E-25A01	PRUNEDALE						248		
13S/02E-25A50	PRUNEDALE	11/16/77	ASH & SONS	7	229	261	261	DOM;	
13S/02E-25J50	PRUNEDALE	6/9/77	ASH & SONS	7	221	253	253	DOM;	
13S/02E-25T50	PRUNEDALE	3/28/75	ASH & SONS	7	248	280	295	DOM;	
13S/02E-25T51	PRUNEDALE	2/12/76	ASH & SONS	7	268	300	310	DOM;	
13S/02E-25T52	PRUNEDALE	10/5/66	C.F. DOUGHERTY	8	132	172	180	DOM;	
13S/02E-25T53	PRUNEDALE	3/31/77	CULLUM SYSTEMS	11	300	520	610	DOM;	
13S/02E-26A01	PRUNEDALE						188		
13S/02E-26C01	PRUNEDALE	10/11/77	C & N PUMP & WELL CO	14	200	620	640	DOM	
13S/02E-26F50	PRUNEDALE	2/26/88	ASH & SONS	6	290	330	350	DOM;	
13S/02E-26F51	PRUNEDALE	4/3/91	ASH & SONS	6	296	336	336	DOM	
13S/02E-26L01	PRUNEDALE						250	IRR;	ABAN

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/02E-26T50	PRUNEDALE	8/3/76	C.F. DOUGHERTY	8	204	244	252	DOM;	
13S/02E-26T51	PRUNEDALE	10/6/74	BEN BARROW CO	30	292	472	496	IRR;	
13S/02E-26T52	PRUNEDALE	10/11/77	C & N PUMP & WELL CO	14	200	620	675	DOM	
13S/02E-26T53	PRUNEDALE	1/30/78	SALINAS PUMP CO	16	168	360	414	DOM;	
13S/02E-27B01	PRUNEDALE	7/7/77	SALINAS PUMP CO	12	500	600	640	DOM;	
13S/02E-27G01	PRUNEDALE			8	140	155	161	DOM;	
13S/02E-27T50	PRUNEDALE	2/21/68	ASH & SONS	6	200	236	265	DOM;	
13S/02E-27T51	PRUNEDALE	5/24/72	ASH & SONS	6	180	216	230	DOM;	
13S/02E-27T54	PRUNEDALE	7/27/78		12	500	600			
13S/02E-27T55	PRUNEDALE	6/18/86	ASH & SONS	8	290	350	350	IRR;	
13S/02E-28P50	PERCHED	11/19/92	ASH & SONS				66		DES
13S/02E-28T50	PRUNEDALE	5/11/79	MAGGIORA BROS	12	320	370	403	IRR;	
13S/02E-28T51	PRUNEDALE	6/8/69	WESTERN DRILLING	12	118	230	250	DOM;	
13S/02E-29T53	PRUNEDALE	7/20/62	C.F. DOUGHERTY	8	24	64	72	DOM;	
13S/02E-33H50	PERCHED	8/16/88	VETTER	2	25	45	45	MON	
13S/02E-33J50	PRUNEDALE	10/14/87	WEST TEK	4	20	45	45	RESTOR;	
13S/02E-33R02	S V GENERAL								
13S/02E-34B50	PRUNEDALE	6/28/79	ASH & SONS	8	200	240	260	DOM;	
13S/02E-34E50	PERCHED	8/22/89		2	6	45	47		
13S/02E-34F51	PRUNEDALE	4/2/59	C.F. DOUGHERTY	8	204	244	252	DOM;	
13S/02E-34N02	PRUNEDALE							DOM;	
13S/02E-34T50	PERCHED		VETTER	2	25	45	45	MON	
13S/02E-80T50	PRUNEDALE	10/23/75	ASH & SONS	7	398	430	440	DOM;	
13S/02E-80T51	PRUNEDALE	3/23/59	VALLEY PUMP				141		
13S/02E-80T52	PRUNEDALE	12/19/63	C.F. DOUGHERTY	8	152	192	200	DOM;	
13S/02E-80T53	PRUNEDALE	8/13/75	C.F. DOUGHERTY	8	184	224	232	DOM;	
13S/02E-80T54	PRUNEDALE	11/23/71	ASH & SONS	6	80	212	220	DOM;	
13S/02E-80T55	PRUNEDALE	3/17/59	VALLEY PUMP				241		
13S/02E-80T56	PRUNEDALE	4/13/59	VALLEY PUMP				226		
13S/02E-80T57	PRUNEDALE	6/18/65	C.F. DOUGHERTY	8	140	180	188	DOM;	
13S/02E-80T58	PRUNEDALE	10/16/69	C.F. DOUGHERTY	8	292	332	340	DOM;	
13S/02E-80T59	PRUNEDALE	11/10/60	C.F. DOUGHERTY	8	60	100	108	IRR;	
13S/02E-80T60	PRUNEDALE	10/23/63	C.F. DOUGHERTY	8	72	112	120	DOM;	
13S/03E-01A01	PAJARO-SPRINGFIELD		PRICE					IRR;	
13S/03E-03C50	PRUNEDALE	6/5/86	ASH & SONS	5	298	398	406	DOM;	
13S/03E-03N50	PRUNEDALE							DOM;	
13S/03E-03P01	PRUNEDALE	3/30/80	ALSOP & SON	8	80	200	415	DOM;	
13S/03E-03P50	PRUNEDALE	7/7/88	ASH & SONS	5	260	300	300	DOM;	
13S/03E-03P51	PRUNEDALE	1/1/61	MELS DRILLING	8	80	200		DOM;	
13S/03E-03T50	PRUNEDALE	7/13/66	C.F. DOUGHERTY	8	60	304	320	DOM;	
13S/03E-03T51	PRUNEDALE	1/24/61	SALINAS PUMP CO				152		
13S/03E-03T52	PRUNEDALE	1/30/61	SALINAS PUMP CO	10	97	281	350		
13S/03E-03T53	PRUNEDALE	3/14/57	C.F. DOUGHERTY	8	52	92	100	IRR;	
13S/03E-04B50	PRUNEDALE	12/21/89	ASH & SONS	5	340	600	603	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-04C50	PRUNEDALE	7/18/85	MAGGIORA BROS	5	200	381	400	DOM;	
13S/03E-04D50	PRUNEDALE	1/7/89	ASH & SONS	5	375	415	420	DOM;	
13S/03E-04E50	PRUNEDALE	10/16/81	ASH & SONS	5	405	445	448	DOM;	
13S/03E-04F50	PRUNEDALE	4/26/88	ASH & SONS	5	425	485	490	DOM;	
13S/03E-04F51	PRUNEDALE	10/23/86	ASH & SONS	5	290	450	471	DOM;	
13S/03E-04F52	PRUNEDALE	7/4/91	ASH & SONS	5	380	420	420	DOM	
13S/03E-04F53	PRUNEDALE	8/24/93	ASH & SONS	5	250	310	310	DOM	
13S/03E-04K01	PRUNEDALE	10/17/74	MAGGIORA BROS	9	370	430	535	DOM;	
13S/03E-04K50	PRUNEDALE	5/5/54	C.F. DOUGHERTY	8	24	56	64	DOM;	
13S/03E-04K51	PRUNEDALE	9/14/78	ROBINETT & SONS	8	120	300	300	DOM;	
13S/03E-04K52	PRUNEDALE	5/31/91	ASH & SONS		550	610	610	DOM	
13S/03E-04L01	PRUNEDALE	5/17/56	C.F. DOUGHERTY	8	212	252	260	DOM;	
13S/03E-04L02	PRUNEDALE	4/14/91	THE PUMP SHOP	8	220	260	268	DOM;	
13S/03E-04L03	PRUNEDALE			7			348	DOM;	
13S/03E-04L50	PRUNEDALE	3/20/68	THE PUMP SHOP	8	204	244	252	DOM;	
13S/03E-04M01	PRUNEDALE			8			233	DOM;	
13S/03E-04M50	PRUNEDALE	7/31/78	ROBINETT & SONS	8	220	331	331	DOM;	
13S/03E-04M51	PRUNEDALE	5/25/93	ASH & SONS	5	184	224	224	DOM	
13S/03E-04N50	PRUNEDALE	8/23/72	ASH & SONS	7	330	366	380	DOM;	
13S/03E-04N51	PRUNEDALE	9/29/81	ASH & SONS	5	234	274	276	DOM;	
13S/03E-04N52	PRUNEDALE	8/11/81	ASH & SONS	5	253	293	301	DOM;	
13S/03E-04N53	PRUNEDALE	6/16/79	CHAPPELL PUMP & SUPPLY	6	93	273	277	DOM	
13S/03E-04P01	PRUNEDALE	5/13/78	ASH & SONS	66	215	543	543	DOM;	
13S/03E-04P02	PRUNEDALE			8	40	0	200	DOM;	
13S/03E-04Q01	PRUNEDALE	12/12/73		6	150	400	495	DOM;	
13S/03E-04R50	PRUNEDALE	12/8/89	ASH & SONS	5	180	420	424	DOM;	
13S/03E-04R51	PRUNEDALE	11/10/87	ASH & SONS	5	380	610	610	DOM;	
13S/03E-04T50	PRUNEDALE	6/14/83	ASH & SONS	5	337	367	374	DOM;	
13S/03E-04T51	PRUNEDALE	10/11/68	FREEDOM GEN REPAIR & PUMP				106		
13S/03E-04T52	PRUNEDALE	10/7/76	ASH & SONS	6	128	170	170	DOM;	
13S/03E-04T53	PRUNEDALE	11/14/52	NUNES	8	210	231	240	DOM;	
13S/03E-04T54	PRUNEDALE	6/16/74	C.F. DOUGHERTY	8	224	326	330	DOM;	
13S/03E-04T55	PRUNEDALE	8/18/72	ASH & SONS	7	240	276	284	DOM;	
13S/03E-04T56	PRUNEDALE	9/9/78	CLIFFORD PUMP & WELL				183		
13S/03E-04T57	PRUNEDALE	4/3/79	CHAPPELL PUMP & SUPPLY	8	120	588	600	DOM	
13S/03E-04T58	PRUNEDALE	11/27/57	C.F. DOUGHERTY	8	124	164	172	DOM;	
13S/03E-04T59	PRUNEDALE	11/22/78	CHAPPELL PUMP & SUPPLY	8	169	525	530	DOM	
13S/03E-04T60	PRUNEDALE	6/6/74	ASH & SONS	7	276	348	348	DOM;	
13S/03E-04T61	PRUNEDALE	3/23/77	MAGGIORA BROS	5	110	435	450	DOM;	
13S/03E-04T62	PRUNEDALE	9/14/66	C.F. DOUGHERTY	8	38	78	84	DOM;	
13S/03E-04T63	PRUNEDALE	9/25/86	ASH & SONS	5	300	340	340	DOM;	
13S/03E-04T64	PRUNEDALE	10/12/72	ASH & SONS	6	374	410	410	DOM;	
13S/03E-04T65	PRUNEDALE	1/25/80	ASH & SONS	6	380	420	420	DOM;	
13S/03E-04T66	PRUNEDALE	3/4/77	MAGGIORA BROS				584	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-05D02	PRUNEDALE	3/16/78	SALINAS PUMP CO	10	312	576	576	IND;	
13S/03E-05E50	PRUNEDALE	8/24/78	CULLUM SYSTEMS	16	260	428	444	IRR;	
13S/03E-05L01	PRUNEDALE			8			480	DOM;	
13S/03E-05L50	PRUNEDALE	9/12/76	ASH & SONS	11	306	532	538	IRR;	
13S/03E-05L51	PRUNEDALE	3/6/78	SALINAS PUMP CO		368	610	665	IRR;	
13S/03E-05N01	PRUNEDALE							DOM;	
13S/03E-05N50	PRUNEDALE	8/2/72	ASH & SONS	7	200	236	246	DOM;	
13S/03E-05N51	PRUNEDALE	3/11/87	ASH & SONS	5	380	420	462	DOM;	
13S/03E-05N52	PRUNEDALE	11/14/64	C.F. DOUGHERTY	8	355	403	411	DOM;	
13S/03E-05N53	PRUNEDALE	12/9/81	ASH & SONS	5	268	308	308	DOM;	
13S/03E-05P01	PRUNEDALE	1/30/62	VALLEY PUMP	10	360	500	500	DOM;	
13S/03E-05P02	PRUNEDALE	5/14/62	C.F. DOUGHERTY	10	160	376	376	DOM;	
13S/03E-05P50	PRUNEDALE	6/15/87	ASH & SONS	5	360	400	405	DOM;	
13S/03E-05P51	PRUNEDALE	1/30/62	SALINAS PUMP CO	10	360	500	500	DOM;	
13S/03E-05P52	PRUNEDALE	8/15/78	C.F. DOUGHERTY	8	324	364	372	DOM;	
13S/03E-05P53	PRUNEDALE	4/5/79	ROBINETT & SONS	8	140	342	342	DOM;	
13S/03E-05Q50	PRUNEDALE	3/14/88	C.F. DOUGHERTY				335		DES
13S/03E-05Q51	PRUNEDALE	4/1/88	ASH & SONS	5	320	360	363	DOM;	
13S/03E-05Q52	PRUNEDALE	12/21/84	ASH & SONS	6	340	400	422	DOM;	
13S/03E-05R01	PRUNEDALE	3/18/73	ASH & SONS	66	309	385	385	DOM;	
13S/03E-05R02	PRUNEDALE			8			356	DOM;	
13S/03E-05R50	PRUNEDALE	7/19/51	C.F. DOUGHERTY	8	195	216	225	DOM;	
13S/03E-05R51	PRUNEDALE	1/9/87	ASH & SONS	5	390	470	480	DOM;	
13S/03E-05R52	PRUNEDALE	12/29/93	ASH & SONS	5	340	440	460	DOM	
13S/03E-05T50	PRUNEDALE	12/4/79	ASH & SONS	6	320	360	370	DOM;	
13S/03E-05T51	PRUNEDALE	3/20/63	C.F. DOUGHERTY	8	204	244	252	DOM;	
13S/03E-05T52	PRUNEDALE	6/3/58	DEATON	8	80	120	120	DOM;	
13S/03E-05T53	PRUNEDALE	1/7/66	ASH & SONS	6	308	348	376	DOM;	
13S/03E-05T54	PRUNEDALE	9/16/76	ASH & SONS	6	318	350	350	DOM;	
13S/03E-05T55	PRUNEDALE	12/20/76	C.F. DOUGHERTY	8	360	430	445	DOM;	
13S/03E-05T56	PRUNEDALE	3/7/81	ASH & SONS	6	350	390	403	DOM;	
13S/03E-05T57	PRUNEDALE	1/29/53	C.F. DOUGHERTY	8	182	222	228	DOM;	
13S/03E-05T58	PRUNEDALE	5/30/72	C.F. DOUGHERTY	8	410	470	480	DOM;	
13S/03E-05T59	PRUNEDALE	8/4/76	ASH & SONS	7	228	260	215	DOM;	
13S/03E-05T60	PRUNEDALE		ROBINETT & SONS	8	42	292	292	DOM;	
13S/03E-05T61	PRUNEDALE	11/24/54	NUNES	12	290	320	330	DOM;	
13S/03E-05T62	PRUNEDALE	3/19/60	DOUGHERTY PUMP & DRILLING	10	84	124	132	DOM;	
13S/03E-05T63	PRUNEDALE	8/29/63	C.F. DOUGHERTY	8	204	244	252	DOM;	
13S/03E-05T64	PRUNEDALE	3/19/81	ASH & SONS	5	490	550	560	DOM;	
13S/03E-05T65	PRUNEDALE	1/24/63	C.F. DOUGHERTY	8	176	216	224	DOM;	
13S/03E-05T66	PRUNEDALE	7/13/62	C.F. DOUGHERTY	8	192	232	240	DOM;	
13S/03E-05T67	PRUNEDALE	5/5/62	C.F. DOUGHERTY				475		HOLE;
13S/03E-05T68	PRUNEDALE	8/3/76	ASH & SONS	7	129	161	165	DOM;	
13S/03E-05T69	PRUNEDALE	3/30/78	SALINAS PUMP CO	10	312	576	613	DOM;IRR;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-05T70	PRUNEDALE	2/25/75	ASH & SONS	7	328	360	380	DOM;	
13S/03E-05T71	PRUNEDALE	5/4/65	C.F. DOUGHERTY	8	260	300	308	DOM;	
13S/03E-05T72	PRUNEDALE	2/25/63	C.F. DOUGHERTY	10	84	144	152	DOM;	
13S/03E-05T73	PRUNEDALE	8/27/54	C.F. DOUGHERTY	8	90	122	130	DOM;	
13S/03E-05T74	PRUNEDALE	5/9/62	C.F. DOUGHERTY	8	220	260	268	DOM;	
13S/03E-05T75	PRUNEDALE	8/19/61	MURPHY	12	183	258	266	IND;	
13S/03E-05T76	PRUNEDALE	5/15/57	C.F. DOUGHERTY	8	200	240	248	DOM;	
13S/03E-05T77	PRUNEDALE	7/24/72	C.F. DOUGHERTY	10	310	390	400	IRR;	
13S/03E-05T78	PRUNEDALE	6/21/76	SALINAS PUMP CO	12	200	460	497	DOM;IRR;	
13S/03E-05T79	PRUNEDALE	9/16/76	SALINAS PUMP CO	12	288	528	544	DOM;IRR;	
13S/03E-06A50	PRUNEDALE	6/11/73	ASH & SONS	7	332	368	385	DOM;	
13S/03E-06C50	PRUNEDALE	9/8/89	ASH & SONS	5	240	280	285	DOM;	
13S/03E-06C51	PRUNEDALE	11/7/86	C.F. DOUGHERTY	6	430	510	510	DOM;	
13S/03E-06F01	PRUNEDALE	6/22/73	VALLEY PUMP	8	180	340	400	DOM;	
13S/03E-06F50	MONTEREY CO GENERAL	10/22/90	C.F. DOUGHERTY	5	220	280	300	DOM;	
13S/03E-06G01	PRUNEDALE	6/18/55	C.F. DOUGHERTY	10	290	350	370	DOM;	
13S/03E-06K01	PRUNEDALE	7/27/79	DOUGHERTY PUMP & DRILLING	8	336	376	384	DOM;	
13S/03E-06K50	PRUNEDALE	2/15/50	C.F. DOUGHERTY	8	300	350	352	DOM;	
13S/03E-06K51	PRUNEDALE	1/25/65	VALLEY PUMP	10	360	540	540	DOM;	
13S/03E-06K52	PRUNEDALE	5/8/82	MAGGIORA BROS	6	280	430	625	DOM;	
13S/03E-06L50	PRUNEDALE	11/8/85	ASH & SONS	8	500	610	625	DOM;	
13S/03E-06R01	PRUNEDALE							DOM;	
13S/03E-06R50	PRUNEDALE	5/9/55	C.F. DOUGHERTY	8	124	156	161	DOM;	
13S/03E-06R51	PRUNEDALE	5/27/63	C.F. DOUGHERTY	8	291	391	408	DOM;	
13S/03E-06R52	PRUNEDALE	12/27/67	C.F. DOUGHERTY	8	250	292	300	DOM;	
13S/03E-06T50	PRUNEDALE	7/28/75	SALINAS PUMP CO	8	340	400	500	DOM;	
13S/03E-06T51	PRUNEDALE	5/14/67	ASH & SONS	6	328	368	415	DOM;	
13S/03E-06T52	PRUNEDALE	4/24/80	CLIFFORD PUMP & WELL	5	375	430	450	DOM	
13S/03E-06T53	PRUNEDALE	11/12/62	C.F. DOUGHERTY	8	1	136	136	DOM;	
13S/03E-06T54	PRUNEDALE	5/23/52	C.F. DOUGHERTY	10	357	402	405	DOM;	
13S/03E-06T55	PRUNEDALE	11/6/59	C.F. DOUGHERTY	8	156	236	248	DOM;	
13S/03E-06T56	PRUNEDALE	3/5/65	C.F. DOUGHERTY	8	268	312	316	DOM;	
13S/03E-06T57	PRUNEDALE	11/1/79	ASH & SONS	7	360	392	409	DOM;	
13S/03E-06T58	PRUNEDALE	2/27/92	ASH & SONS	6			490	DOM;	
13S/03E-07A01	PRUNEDALE	7/1/51	C.F. DOUGHERTY	8	258	279	288	DOM;	
13S/03E-07A02	PRUNEDALE			8			240	DOM;	
13S/03E-07A03	PRUNEDALE	5/28/73	L E MELVILLE	10	296	340	348	DOM;	
13S/03E-07A50	PRUNEDALE	7/23/82	C.F. DOUGHERTY	10	422	502	510	DOM;	
13S/03E-07A51	PRUNEDALE	6/2/83	ASH & SONS	12			292	DOM;	
13S/03E-07A52	PRUNEDALE	5/28/71	ASH & SONS	6	304	340	352	DOM;	
13S/03E-07A53	PRUNEDALE	7/24/91	DOUGHERTY PUMP & DRILLING	5	420	560	560	DOM	
13S/03E-07A54	PRUNEDALE	3/8/91	ASH & SONS	5	400	440	440	DOM	
13S/03E-07B01	PRUNEDALE			8	405	445	445	DOM;	
13S/03E-07D50	PRUNEDALE	1/28/87	ASH & SONS	5	440	500	520	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-07E50	PRUNEDALE	7/3/85	ASH & SONS	5	440	480	485	DOM;	
13S/03E-07E51	PRUNEDALE	3/11/88	ASH & SONS	5	320	360	370	DOM;	
13S/03E-07E52	PRUNEDALE	4/18/89	ASH & SONS	5	390	430	440	DOM;	
13S/03E-07E53	PRUNEDALE	6/9/89	ASH & SONS	5	380	420	425	DOM;	
13S/03E-07E54	PRUNEDALE	8/8/86	ASH & SONS	5	440	480	490	DOM;	
13S/03E-07E55	PRUNEDALE	8/27/92	ASH & SONS	6	374	414	414	DOM	
13S/03E-07F01	PRUNEDALE	12/4/65	ASH & SONS	8	405	455	485	DOM;	
13S/03E-07F02	PRUNEDALE			8			475	DOM;	
13S/03E-07H50	PRUNEDALE	10/17/65	C.F. DOUGHERTY	8	302	362	370	DOM;	
13S/03E-07J50	PRUNEDALE	4/5/79	C.F. DOUGHERTY	8	244	284	292	DOM;	
13S/03E-07J51	PRUNEDALE		ASH & SONS	6	250	278			DESTROYED
13S/03E-07J52	PRUNEDALE	4/19/91	ASH & SONS	5	337	377	377	DOM	
13S/03E-07T50	PRUNEDALE	10/24/60	VALLEY PUMP	8	183	300	300	DOM;	
13S/03E-07T51	PRUNEDALE	3/8/74	ASH & SONS				420		DES
13S/03E-07T52	PRUNEDALE	2/17/71	C.F. DOUGHERTY	8	272	312	320	DOM;	
13S/03E-07T53	PRUNEDALE	8/20/60	C.F. DOUGHERTY	8	152	192	200	DOM;	
13S/03E-07T54	PRUNEDALE	9/22/66	C.F. DOUGHERTY	10	84	124	132	DOM;	
13S/03E-07T55	PRUNEDALE	11/3/52	C.F. DOUGHERTY	10	78	108	117	DOM;	
13S/03E-07T56	PRUNEDALE	12/2/52	C.F. DOUGHERTY	8	405	445	449	DOM;	
13S/03E-07T57	PRUNEDALE	7/22/67	C.F. DOUGHERTY	8	252	312	320	DOM;	
13S/03E-07T58	PRUNEDALE	6/10/55	C.F. DOUGHERTY	8	169	201	205	DOM;	
13S/03E-07T59	PRUNEDALE	2/23/56	C.F. DOUGHERTY	8	184	224	249	DOM;	
13S/03E-07T60	PRUNEDALE	10/21/53	C.F. DOUGHERTY	8	74	106	114	DOM;	
13S/03E-07T61	PRUNEDALE	2/28/56	C.F. DOUGHERTY	8	60	92	104	DOM;	
13S/03E-07T62	PRUNEDALE	8/5/75	ASH & SONS	7	323	355	370	DOM;	
13S/03E-07T63	PRUNEDALE	10/2/64	C.F. DOUGHERTY	10	280	335	343	DOM;	
13S/03E-07T64	PRUNEDALE	11/6/78	CULLUM SYSTEMS	9	140	230	250	DOM;	
13S/03E-07T65	PRUNEDALE	12/18/76	ASH & SONS	7	440	472	480	DOM;	
13S/03E-07T66	PRUNEDALE	12/9/60	C.F. DOUGHERTY	8	140	180	188	DOM;	
13S/03E-07T67	PRUNEDALE	6/11/69	C.F. DOUGHERTY	8	224	264	272	DOM;	
13S/03E-07T68	PRUNEDALE	11/22/60	C.F. DOUGHERTY	8	138	178	186	DOM;	
13S/03E-07T69	PRUNEDALE	4/29/61	C.F. DOUGHERTY	8	204	244	252	DOM;	
13S/03E-07T70	PRUNEDALE	11/15/78	C.F. DOUGHERTY	8	104	144	152	DOM;	
13S/03E-07T71	PRUNEDALE	11/12/82	ASH & SONS	5	330	390	402	DOM;	
13S/03E-07T72	PRUNEDALE	8/30/69	C.F. DOUGHERTY	8	217	257	265	DOM;	
13S/03E-07T73	PRUNEDALE	2/20/76	ASH & SONS	7			385	DOM;	
13S/03E-07T74	PRUNEDALE	9/13/60	C.F. DOUGHERTY	10	428	480	488	DOM;	
13S/03E-07T75	PRUNEDALE	6/5/53	C.F. DOUGHERTY	8	96	126	135	DOM;	
13S/03E-07T76	PRUNEDALE	3/6/74	ASH & SONS	7	340	368	387	DOM;	
13S/03E-07T77	PRUNEDALE	6/8/60	C.F. DOUGHERTY	10	300	353	360	DOM;	
13S/03E-07T78	PRUNEDALE	1/10/73	ROBINETT & SONS	8	161	201	202	DOM;	
13S/03E-07T79	PRUNEDALE	6/18/55	C.F. DOUGHERTY	10	290	350	359	DOM;	
13S/03E-07T80	PRUNEDALE	7/9/53	C.F. DOUGHERTY	8	63	93	102	DOM;	
13S/03E-07T81	PRUNEDALE	8/21/80	ASH & SONS	6	360	410	414	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-07T82	PRUNEDALE	12/4/65	ASH & SONS	8	405	455	485		
13S/03E-07T83	PRUNEDALE	10/12/76	ASH & SONS	7	328	370	380	DOM;	
13S/03E-07T84	PRUNEDALE	5/13/77	CLIFFORD PUMP & WELL	6	195	213	231	DOM	
13S/03E-07T85	PRUNEDALE	9/22/78	ASH & SONS	7	440	472	487	DOM;	
13S/03E-07T86	PRUNEDALE	1/19/94	ASH & SONS	5	414	454	454	DOM	
13S/03E-08A50	PRUNEDALE	5/1/75	ROBINETT & SONS	8	200	400	400	DOM;	
13S/03E-08B01	PRUNEDALE	3/4/49	C.F. DOUGHERTY	8	186	207	216	DOM;	
13S/03E-08C01	PRUNEDALE	1/19/78	ASH & SONS	7	390	458	458	DOM;	
13S/03E-08C50	PRUNEDALE	3/12/81	ASH & SONS	6	210	250	257	DOM;	
13S/03E-08C51	PRUNEDALE	5/11/89	ASH & SONS	5	380	420	440	DOM;	
13S/03E-08C52	PRUNEDALE	3/4/81	ASH & SONS	6	360	400	420	DOM;	
13S/03E-08D01	PRUNEDALE	8/27/54	C.F. DOUGHERTY	8	90	122	130	DOM;	
13S/03E-08D02	PRUNEDALE	8/1/77	CLIFFORD PUMP & WELL	8	215	245	266	DOM;	
13S/03E-08D03	PRUNEDALE						105	DOM;	
13S/03E-08D04	PRUNEDALE			8			240	DOM;	
13S/03E-08D50	PRUNEDALE	8/19/77	CLIFFORD PUMP & WELL	8	215	245	266	DOM	
13S/03E-08D51	PRUNEDALE	11/1/66	MELS DRILLING	8	240	280	280	DOM;	
13S/03E-08E01	PRUNEDALE			10			210	DOM;	
13S/03E-08E50	PRUNEDALE	5/12/87	C.F. DOUGHERTY	8	320	420	425	DOM;	
13S/03E-08F50	PRUNEDALE	9/7/79	C.F. DOUGHERTY	8	228	288	296	DOM;	
13S/03E-08F51	PRUNEDALE	9/12/69	C.F. DOUGHERTY	8	380	420	428	DOM;	
13S/03E-08G01	PRUNEDALE	3/22/49	C.F. DOUGHERTY	8	90	111	120	DOM;	
13S/03E-08G02	PRUNEDALE	3/4/60	C.F. DOUGHERTY	8	192	234	238	DOM;	
13S/03E-08G03	PRUNEDALE	5/24/85	ASH & SONS	6	500	620	620	DOM;	
13S/03E-08G50	PRUNEDALE	5/22/86	ASH & SONS	5	390	470	480	DOM;	
13S/03E-08G51	PRUNEDALE	4/27/81	ASH & SONS	5	372	440	440	DOM;	
13S/03E-08G52	PRUNEDALE	6/13/80	ASH & SONS	7	240	560	575	DOM;	
13S/03E-08G53	PRUNEDALE	9/25/80	ASH & SONS	5	275	315	320	DOM;	
13S/03E-08G54	PRUNEDALE	10/24/67	C.F. DOUGHERTY	8	76	116	124	DOM;	
13S/03E-08H01	PRUNEDALE			8	180	0	202	DOM;	
13S/03E-08H02	PRUNEDALE	4/29/78	ROBINETT		185	385	385	DOM;	
13S/03E-08H03	PRUNEDALE			8			453	DOM;	
13S/03E-08H50	PRUNEDALE	7/20/85	ALSOP & SON	6	483	560	565	DOM;	
13S/03E-08J50	PRUNEDALE	4/1/87	ASH & SONS	5	420	460	460	DOM;	
13S/03E-08J51	PRUNEDALE	11/19/86	ASH & SONS	5	410	450	460	DOM;	
13S/03E-08K01	PRUNEDALE			8			350	DOM;	
13S/03E-08K02	PRUNEDALE			8			159	DOM;	
13S/03E-08K03	PRUNEDALE	7/25/84	ASH & SONS	5	240	300	305	DOM;	
13S/03E-08K50	PRUNEDALE	1/8/88	ASH & SONS	5	415	475	449	DOM;	
13S/03E-08K51	PRUNEDALE	1/22/88	ASH & SONS	5	350	390	400	DOM;	
13S/03E-08K52	PRUNEDALE	9/11/67	C.F. DOUGHERTY	8	364	360	420	DOM;	
13S/03E-08L50	PRUNEDALE	7/1/81	ASH & SONS	5	215	255	260	DOM;	
13S/03E-08M01	PRUNEDALE	9/12/80	ASH & SONS	6	394	444	450	DOM;	
13S/03E-08M02	PRUNEDALE			8			247	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-08M50	PRUNEDALE	1/9/78	ASH & SONS	7	283	325	325	DOM;	
13S/03E-08M51	PRUNEDALE	5/9/86	ASH & SONS	6	395	455	460	DOM;	
13S/03E-08M52	PRUNEDALE	4/23/86	ASH & SONS	6	400	440	460	DOM;	
13S/03E-08N01	PRUNEDALE			7			240	DOM;	
13S/03E-08N02	PRUNEDALE	10/18/79	ASH & SONS	7	280	320	320	DOM;	
13S/03E-08N50	PRUNEDALE	11/28/83	C.F. DOUGHERTY	8	156	196	204	DOM;	
13S/03E-08N51	PRUNEDALE	6/9/90	ASH & SONS	5	310	350	351	DOM;	
13S/03E-08P50	PRUNEDALE	3/15/89	ASH & SONS	5	400	460	465	IRR;	
13S/03E-08Q01	PRUNEDALE	3/26/49	C.F. DOUGHERTY	8	66	87	96	DOM;	
13S/03E-08Q02	PRUNEDALE	10/2/54	C.F. DOUGHERTY	8	105	144	165	DOM;	
13S/03E-08R01	PRUNEDALE	8/10/61	C.F. DOUGHERTY	10	140	387	391	DOM;	
13S/03E-08R50	PRUNEDALE	10/16/90	ASH & SONS	5	440	480	495	DOM;	
13S/03E-08R51	PRUNEDALE	2/23/63	C.F. DOUGHERTY	8	262	367	371	DOM;	
13S/03E-08R52	PRUNEDALE	7/26/91	MAGGIORA BROS				391		DES
13S/03E-08T50	PRUNEDALE	10/20/60	C.F. DOUGHERTY	8	152	192	200	DOM;	
13S/03E-08T51	PRUNEDALE	6/10/80	ASH & SONS	5	255	295	305	DOM;	
13S/03E-08T52	PRUNEDALE	6/21/52	C.F. DOUGHERTY	8	30	60	69	DOM;	
13S/03E-08T53	PRUNEDALE	6/13/80	ASH & SONS	7	240	560	575	DOM;	
13S/03E-08T54	PRUNEDALE	4/19/85	ASH & SONS	5	300	340	345	DOM;	
13S/03E-08T55	PRUNEDALE	2/28/74	SALINAS PUMP CO	8	152	312	325	DOM;	
13S/03E-08T56	PRUNEDALE		ROBINETT & SONS	8	110	240	240	DOM;	
13S/03E-08T57	PRUNEDALE	8/13/76	C.F. DOUGHERTY	8	172	212	220	DOM;	
13S/03E-08T58	PRUNEDALE	6/15/63	C.F. DOUGHERTY	8	345	445	453	DOM;	
13S/03E-08T59	PRUNEDALE	6/14/52	C.F. DOUGHERTY	8	30	60	69	DOM;	
13S/03E-08T60	PRUNEDALE	7/8/61	C.F. DOUGHERTY	8	96	136	144	DOM;	
13S/03E-08T61	PRUNEDALE	10/29/76	FREEDOM GEN REPAIR & PUMP	8	88	120	272	DOM;	
13S/03E-08T62	PRUNEDALE	7/1/74	SALINAS PUMP CO	7	188	368	390	DEEPENING	
13S/03E-08T63	PRUNEDALE	11/11/80	ASH & SONS	5	372	412	414	DOM;	
13S/03E-08T64	PRUNEDALE	12/20/63	C.F. DOUGHERTY	8			168	DOM;	
13S/03E-08T65	PRUNEDALE	2/17/60	C.F. DOUGHERTY	8	200	286	300	DOM;	
13S/03E-08T66	PRUNEDALE	11/1/76	C.F. DOUGHERTY	8	312	416	420	DOM;	
13S/03E-08T67	PRUNEDALE	4/20/77	ASH & SONS	7	228	430	480	DOM;	
13S/03E-08T68	PRUNEDALE	6/24/55	C.F. DOUGHERTY	8	120	160	172	DOM;	
13S/03E-08T69	PRUNEDALE	8/20/54	C.F. DOUGHERTY	8	60	92	100	DOM;	
13S/03E-08T70	PRUNEDALE	9/9/74	C.F. DOUGHERTY	8	180	220	228	DOM;	
13S/03E-08T71	PRUNEDALE	6/29/59	C.F. DOUGHERTY	8			144	DOM;	
13S/03E-08T72	PRUNEDALE	3/27/52	C.F. DOUGHERTY	8	93	132	135	DOM;	
13S/03E-08T73	PRUNEDALE	4/4/52	C.F. DOUGHERTY	8	127	157	168	DOM;	
13S/03E-08T74	PRUNEDALE	5/20/66	C.F. DOUGHERTY	8	240	360	368	DOM;	
13S/03E-08T75	PRUNEDALE	7/24/59	C.F. DOUGHERTY	8	130	176	180	DOM;	
13S/03E-08T76	PRUNEDALE	6/4/73	ASH & SONS	7	344	380	400	DOM;	
13S/03E-08T77	PRUNEDALE	7/2/71	ASH & SONS	6	310	340	348	DOM;	
13S/03E-08T78	PRUNEDALE	10/30/80	ASH & SONS	6	400	446	460	DOM;	
13S/03E-08T79	PRUNEDALE	2/18/63	C.F. DOUGHERTY	8	152	192	200	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-09A01	PRUNEDALE	2/27/78	MAGGIORA BROS	5	300	595	600	DOM;	
13S/03E-09B01	PRUNEDALE			8			505	DOM;	
13S/03E-09B02	PRUNEDALE	4/10/79	MAGGIORA BROS	5	135	395	395	DOM;	
13S/03E-09B50	PRUNEDALE	8/9/85	ASH & SONS	8	200	350	460	DOM;	
13S/03E-09B51	PRUNEDALE	4/3/87	ASH & SONS	5	220	260	265	DOM;	
13S/03E-09B52	PRUNEDALE	12/30/85	ASH & SONS	5	260	340	360	DOM;	
13S/03E-09B53	PRUNEDALE	1/10/86	ASH & SONS	5	120	390	395	DOM;	
13S/03E-09B54	PRUNEDALE	3/20/69	FREEDOM GEN REPAIR & PUMP	8	102	134	134	DOM;	
13S/03E-09B55	PRUNEDALE	8/2/77	ASH & SONS	7	301	407	407	DOM;	
13S/03E-09C01	PRUNEDALE	5/24/74	ASH & SONS	7	332	360	360	DOM;	
13S/03E-09C50	PRUNEDALE	2/7/90	ASH & SONS	5	397	457	460	DOM;	
13S/03E-09C51	PRUNEDALE	3/13/90	ASH & SONS	5	410	590	595	DOM;	
13S/03E-09C52	PRUNEDALE	6/12/76	ROBINETT & SONS	8	114	214	214	DOM;	
13S/03E-09C53	PRUNEDALE	9/9/83	C.F. DOUGHERTY	8	300	636	636	DOM;	
13S/03E-09D50	PRUNEDALE	8/30/78	ASH & SONS	7	294	550	550	DOM;	
13S/03E-09D51	PRUNEDALE	10/29/93	ASH & SONS	5	380	440	440	DOM	
13S/03E-09E50	PRUNEDALE	12/5/78	SALINAS PUMP CO	6	200	380	390	DOM;	
13S/03E-09E51	PRUNEDALE	2/6/78	ASH & SONS	7	431	631	631	DOM;	
13S/03E-09F50	PRUNEDALE	5/26/51	C.F. DOUGHERTY	7	189	210	220	DOM;	
13S/03E-09F51	PRUNEDALE	12/24/70	C.F. DOUGHERTY	8	420	464	480	DOM;	
13S/03E-09F52	PRUNEDALE	4/4/73	MAGGIORA BROS	6			505	DOM;	
13S/03E-09F53	PRUNEDALE	9/8/86	ASH & SONS	5	220	260	263	DOM;	
13S/03E-09G50	PRUNEDALE	9/25/90	ASH & SONS	5	376	476	520	DOM;	
13S/03E-09G51	PRUNEDALE	11/4/70	C.F. DOUGHERTY	8	164	204	216	DOM	
13S/03E-09G52	PRUNEDALE	1/19/90	ASH & SONS	5	414	454	460	DOM;	
13S/03E-09G53	PRUNEDALE	10/2/87	ASH & SONS	5	218	398	400	DOM;	
13S/03E-09G54	PRUNEDALE	12/15/79	MAGGIORA BROS	5	123	377	380	DOM;	
13S/03E-09H01	PRUNEDALE	7/18/79	ASH & SONS	66	320	352	352	DOM;	
13S/03E-09H02	PRUNEDALE							DOM;	
13S/03E-09H50	PRUNEDALE	1/6/79	CULLUM SYSTEMS	8	110	203	205	DOM;	
13S/03E-09H51	PRUNEDALE	12/28/78	CULLUM SYSTEMS	8	70	140	140	DOM;	
13S/03E-09H52	PRUNEDALE	11/24/65	C.F. DOUGHERTY	10	40	72	80	DOM;	DES
13S/03E-09J01	PRUNEDALE	3/1/62	C.F. DOUGHERTY	10	48	68	80	DOM;	DES
13S/03E-09J02	PRUNEDALE			8			150	DOM;	
13S/03E-09J03	PRUNEDALE							DOM;	
13S/03E-09J50	PRUNEDALE	2/10/89	ASH & SONS	5	360	400	400	DOM;	
13S/03E-09J51	PRUNEDALE	3/21/90	ASH & SONS	5	300	340	342	DOM;	
13S/03E-09J52	PRUNEDALE	2/24/62	C.F. DOUGHERTY	8	48	240	246	DOM;	
13S/03E-09J53	PRUNEDALE	11/9/89	ASH & SONS	5	320	380	384	DOM;	
13S/03E-09J55	PRUNEDALE	12/9/89	ASH & SONS	5	145	185	186	DOM;	
13S/03E-09K01	PRUNEDALE	2/12/49	C.F. DOUGHERTY	8	57	87	96	DOM;	
13S/03E-09L01	PRUNEDALE	4/21/58	C.F. DOUGHERTY	8	228	268	276	IRR;	
13S/03E-09L50	PRUNEDALE	6/18/85	ASH & SONS	5	452	572	580	DOM;	
13S/03E-09L51	PRUNEDALE	4/15/81	ASH & SONS	5	360	400	410	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-09L52	PRUNEDALE	9/7/68	C.F. DOUGHERTY	8	32	72	80	DOM;	
13S/03E-09N50	PRUNEDALE	5/4/51	C.F. DOUGHERTY	8	66	87	96	DOM;	
13S/03E-09N51	PRUNEDALE	3/13/87	C.F. DOUGHERTY	6	285	365	371	DOM;	
13S/03E-09P01	PRUNEDALE	7/26/79	MAGGIORA BROS	6	160	480	480	DOM;	
13S/03E-09P02	PRUNEDALE			8			327	DOM;	
13S/03E-09P50	PRUNEDALE	7/29/87	ASH & SONS	5	380	460	460	DOM;	
13S/03E-09P51	PRUNEDALE	5/7/81	ASH & SONS	6	122	152	158	DOM;	
13S/03E-09Q01	PRUNEDALE	4/28/75	MAGGIORA BROS	9			480	DOM;	
13S/03E-09Q02	PRUNEDALE	5/4/77	ASH & SONS	7	334	366	366	DOM;	
13S/03E-09Q03	PRUNEDALE							DOM;	
13S/03E-09Q50	PRUNEDALE	9/7/61	C.F. DOUGHERTY	8	65	336	358	DOM;	
13S/03E-09Q51	PRUNEDALE	5/6/88	ASH & SONS	5	280	320	322	DOM;	
13S/03E-09Q52	PRUNEDALE	8/25/87	ASH & SONS	5	300	360	363	DOM;	
13S/03E-09Q53	PRUNEDALE	6/16/50	C.F. DOUGHERTY	8	96	117	126	DOM;	
13S/03E-09Q54	PRUNEDALE	2/1/80	FREEDOM GEN REPAIR & PUMP	6	186	206	206	DOM;	
13S/03E-09Q55	PRUNEDALE	10/6/67	C.F. DOUGHERTY	10	60	290	290	DOM;	
13S/03E-09Q56	PRUNEDALE	9/15/51	C.F. DOUGHERTY	8	90	111	120	DOM;	
13S/03E-09R01	PRUNEDALE	2/12/49	C.F. DOUGHERTY	8	57	87	280	DOM;	
13S/03E-09R50	PRUNEDALE	4/22/71	C.F. DOUGHERTY	8	76	116	124	DOM;	
13S/03E-09R51	PRUNEDALE	10/20/87	C.F. DOUGHERTY	6	50	90	90	DOM;	
13S/03E-09R52	PRUNEDALE	3/13/75	MAGGIORA BROS				415	DOM;	
13S/03E-09R53	PRUNEDALE	12/17/85	C.F. DOUGHERTY	6	40	100	115	DOM;	
13S/03E-09T50	PRUNEDALE	3/22/63	VALLEY PUMP	8	60	120	129	DOM;	
13S/03E-09T51	PRUNEDALE	11/6/74	C.F. DOUGHERTY	8	24	64	72	DOM;	
13S/03E-09T52	PRUNEDALE	10/29/71	ASH & SONS	6	114	150	160	DOM;	
13S/03E-09T53	PRUNEDALE	12/3/60	C & N PUMP & WELL CO				172	TEST WELL	
13S/03E-09T54	PRUNEDALE	1/27/74	ASH & SONS	7	232	424	424	DOM;	
13S/03E-09T55	PRUNEDALE	4/25/79	CULLUM SYSTEMS	9	70	200	225	IRR;	
13S/03E-09T56	PRUNEDALE	3/18/77	MAGGIORA BROS				385	TEST WELL	
13S/03E-09T57	PRUNEDALE	9/26/58	C.F. DOUGHERTY	10	52	92	100	DOM;	
13S/03E-09T58	PRUNEDALE	6/15/62	C.F. DOUGHERTY	8	96	136	144	DOM;	
13S/03E-09T59	PRUNEDALE	6/29/60	C.F. DOUGHERTY	8	104	144	152	DOM;	
13S/03E-09T60	PRUNEDALE	7/13/65	C.F. DOUGHERTY	8	92	132	140	DOM;	
13S/03E-09T61	PRUNEDALE	1/14/65	C.F. DOUGHERTY	9			230	DOM;	
13S/03E-09T62	PRUNEDALE	11/26/76	C.F. DOUGHERTY	8	288	348	375	DOM;	
13S/03E-09T63	PRUNEDALE	4/14/66	C.F. DOUGHERTY	8	92	132	140	DOM;	
13S/03E-09T64	PRUNEDALE	3/23/60	VALLEY PUMP	8	180	300	300	DOM;	
13S/03E-09T65	PRUNEDALE	6/3/81	ASH & SONS	5	120	140	165	DOM;	
13S/03E-09T66	PRUNEDALE	10/13/75	ASH & SONS	7	271	303	303	DOM;	
13S/03E-09T67	PRUNEDALE	6/26/81	ASH & SONS	5	140	210	220	DOM;	
13S/03E-09T68	PRUNEDALE	6/25/71	ASH & SONS	6	180	236	250	DOM;	
13S/03E-09T69	PRUNEDALE	10/25/51	C.F. DOUGHERTY	8	180	240	240	DOM;	
13S/03E-09T70	PRUNEDALE	1/5/62	C.F. DOUGHERTY	8	80	120	128	DOM;	
13S/03E-09T71	PRUNEDALE	2/22/71	C.F. DOUGHERTY	8	92	132	140	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-09T72	PRUNEDALE	8/21/70	C.F. DOUGHERTY	8	224	324	328	DOM;	
13S/03E-09T73	PRUNEDALE	8/3/54	DEATON	8	24	44	44	DOM;	
13S/03E-09T74	PRUNEDALE	11/27/78	CULLUM SYSTEMS	6	65	125	130	DOM;	
13S/03E-09T75	PRUNEDALE	5/17/76	ASH & SONS	9	349	389	389	DOM;	
13S/03E-09T76	PRUNEDALE	6/30/81	ASH & SONS	5	293	393	400	DOM;	
13S/03E-09T77	PRUNEDALE	9/2/53	C.F. DOUGHERTY	10	168	208	212	DOM;	
13S/03E-09T78	PRUNEDALE	5/8/75	C.F. DOUGHERTY	8	336	376	390	DOM;	
13S/03E-09T79	PRUNEDALE	4/22/53	C.F. DOUGHERTY	8	111	141	150	DOM;	
13S/03E-09T80	PRUNEDALE	9/27/53	C.F. DOUGHERTY	10	68	120	128	DOM;	
13S/03E-09T81	PRUNEDALE	6/2/81	C.F. DOUGHERTY	8	18	58	70	DOM;	
13S/03E-09T82	PRUNEDALE	10/11/71	CLIFFORD PUMP & WELL	8	110	150	150	DOM	
13S/03E-09T83	PRUNEDALE	9/3/71	C.F. DOUGHERTY	8	116	156	164	DOM;	
13S/03E-09T84	PRUNEDALE	1/31/62	C.F. DOUGHERTY	8	80	120	181	DOM;	
13S/03E-09T85	PRUNEDALE	2/8/63	C.F. DOUGHERTY	8	32	72	80	DOM;	
13S/03E-09T86	PRUNEDALE	4/14/78	C.F. DOUGHERTY	8	195	292	320	DOM;	
13S/03E-09T87	PRUNEDALE	5/11/70	C.F. DOUGHERTY	8	288	328	336	DOM;	
13S/03E-09T88	PRUNEDALE	11/22/70	FREEDOM GEN REPAIR & PUMP	8	153	173	185	DOM;	
13S/03E-09T89	PRUNEDALE	8/2/66	C.F. DOUGHERTY	8	224	264	290	DOM;	
13S/03E-09T90	PRUNEDALE	8/2/78	MAGGIORA BROS	6	90	280	300	DOM;	
13S/03E-09T91	PRUNEDALE	10/29/71	ASH & SONS	6	280	316	328	DOM;	
13S/03E-09T92	PRUNEDALE	11/16/79	C.F. DOUGHERTY				390	DOM;	
13S/03E-09T93	PRUNEDALE	7/10/76	ASH & SONS	7	368	400	400	DOM;	
13S/03E-09T94	PRUNEDALE	9/19/61	C.F. DOUGHERTY	8			80	DOM;	
13S/03E-09T95	PRUNEDALE	9/9/59	C.F. DOUGHERTY	8	20	48	56	DOM;	
13S/03E-09T96	PRUNEDALE	10/4/60	VALLEY PUMP				220	TEST WELL	
13S/03E-09T97	PRUNEDALE	9/16/66	C.F. DOUGHERTY	8	156	196	204	DOM;	
13S/03E-09T98	PRUNEDALE	1/10/63	C.F. DOUGHERTY	8	84	210	214	DOM;	
13S/03E-09T99	PRUNEDALE	5/24/78	MAGGIORA BROS	6	140	220	250	DOM;	
13S/03E-09T99B	PRUNEDALE	10/16/80	MAGGIORA BROS	6	135	335	335	DOM;	
13S/03E-09T99	PRUNEDALE	6/16/74	ASH & SONS	6	360	455	455	DEEPENING	
13S/03E-09T99	PRUNEDALE	10/20/75	MAGGIORA BROS	5	195	335	370	DOM;	
13S/03E-09T99E	PRUNEDALE	9/16/61	C.F. DOUGHERTY	8	36	76	84	DOM;	
13S/03E-09T99F	PRUNEDALE	8/30/52	C.F. DOUGHERTY	8	51	81	90	DOM;	
13S/03E-09T99	PRUNEDALE	3/3/79	C.F. DOUGHERTY	8	72	132	140	DOM;	
13S/03E-09T99	PRUNEDALE	10/20/64	C.F. DOUGHERTY	7	292	340	352	DOM;	
13S/03E-09T99I	PRUNEDALE	10/1/80	ROMAN WELL DRILLING	5	200	400	400	DOM;	
13S/03E-09T99J	PRUNEDALE	7/22/64	C.F. DOUGHERTY	10	183	416	424	DOM;	
13S/03E-09T99	PRUNEDALE	3/30/66	MELS DRILLING	8	220	300	300	DOM;	
13S/03E-09T99	PRUNEDALE	7/6/61	C.F. DOUGHERTY	8	60	100	108	DOM;	
13S/03E-09T99	PRUNEDALE	5/24/78	MAGGIORA BROS	6	140	220	250	DOM;	
13S/03E-09T99P	PRUNEDALE	10/22/93	ASH & SONS	5	400	460	440	DOM	
13S/03E-09T99	PRUNEDALE	10/27/93	ASH & SONS	5	422	542	542	DOM	
13S/03E-10A50	PRUNEDALE	3/6/90	ASH & SONS	5	370	430	430	DOM	
13S/03E-10B50	PRUNEDALE	5/27/89	ASH & SONS	5	280	380	395	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-10D01	PRUNEDALE			7	200	448	448	DOM;	
13S/03E-10D50	PRUNEDALE	9/10/77	MAGGIORA BROS	5	250	550	550	DOM;	
13S/03E-10F50	PRUNEDALE	6/8/83	ASH & SONS	5	257	297	304	DOM;	
13S/03E-10G01	PRUNEDALE	6/25/75	MAGGIORA BROS	5	80	375	400	DOM;	
13S/03E-10H50	PRUNEDALE	8/25/88	ASH & SONS	5	280	380	420	DOM;	
13S/03E-10H51	PRUNEDALE	12/13/91	ASH & SONS	5	378	418	418	DOM;	
13S/03E-10H52	PRUNEDALE	7/26/92	ROBINETT & SONS		100	200	210	DOM	
13S/03E-10K01	PRUNEDALE	11/17/73	MAGGIORA BROS	9			320	DOM;	
13S/03E-10K02	PRUNEDALE	8/8/78	SALINAS PUMP CO	8	54	334	129	DOM;MUN;	
13S/03E-10K50	PRUNEDALE	12/12/88	SALINAS PUMP CO	5	80	410	438	DOM;	
13S/03E-10K51	PRUNEDALE	2/3/88	ASH & SONS	5	235	275	276	DOM;	
13S/03E-10K52	PRUNEDALE	6/24/78	MAGGIORA BROS	5	165	385	420	DOM;	
13S/03E-10L01	PRUNEDALE	5/1/74	ASH & SONS	7	100	129	129	DOM;	
13S/03E-10L50	PRUNEDALE	5/4/61	C.F. DOUGHERTY	8	14	80	88	DOM;	
13S/03E-10L51	PRUNEDALE	12/8/78	CHAPPELL PUMP & SUPPLY				310	TEST WELL	
13S/03E-10M50	PRUNEDALE	7/16/79	CULLUM SYSTEMS	8	80	260	280	DOM;	
13S/03E-10N01	PRUNEDALE						145	DOM;	
13S/03E-10N50	PRUNEDALE	8/16/60	C.F. DOUGHERTY	7	160	200	204	DOM;	
13S/03E-10N51	PRUNEDALE	8/31/78	MAGGIORA BROS	6	50	280	295	DOM;	
13S/03E-10N52	PRUNEDALE	11/12/77	ASH & SONS	7	200	232	232	DOM;	
13S/03E-10P01	PRUNEDALE	12/2/69	C.F. DOUGHERTY	8	92	132	140	DOM;	
13S/03E-10P02	PRUNEDALE		CHAPPELL PUMP & SUPPLY	5	380	720	723	DOM;	
13S/03E-10P50	PRUNEDALE	3/22/88	ASH & SONS	5	360	460	461	DOM;	
13S/03E-10Q01	PRUNEDALE	8/1/35	ALSOP & SON		61	76	76	DOM;	
13S/03E-10Q02	PRUNEDALE							DOM;	
13S/03E-10Q50	PRUNEDALE	8/9/88	ASH & SONS	5	375	575	580	DOM;	
13S/03E-10Q51	PRUNEDALE	9/17/81	ASH & SONS	5	265	325	345	DOM;	
13S/03E-10Q52	PRUNEDALE	3/15/77	ASH & SONS	7	160	200	200	DOM;	
13S/03E-10T50	PRUNEDALE	9/30/66	NUNES	8	24	64	72	DOM;	
13S/03E-10T51	PRUNEDALE	6/24/72	ASH & SONS	6	160	196	206	DOM;	
13S/03E-10T52	PRUNEDALE	4/12/57	C.F. DOUGHERTY	8	32	72	80	DOM;	
13S/03E-10T53	PRUNEDALE	6/6/59	C.F. DOUGHERTY	8	88	128	136	DOM;	
13S/03E-10T54	PRUNEDALE	3/23/54	C.F. DOUGHERTY	8	150	250	365	DOM;	
13S/03E-10T55	PRUNEDALE	4/30/79	CULLUM SYSTEMS	8	70	240	250	DOM;	
13S/03E-10T56	PRUNEDALE	8/8/62	C.F. DOUGHERTY	8	32	72	80	DOM;	
13S/03E-10T57	PRUNEDALE	7/23/55	C.F. DOUGHERTY	8	104	136	144	DOM;	
13S/03E-10T58	PRUNEDALE	10/22/66	C.F. DOUGHERTY	8	196	236	244	DOM;	
13S/03E-10T59	PRUNEDALE	1/29/58	C.F. DOUGHERTY	8	32	72	80	DOM;	
13S/03E-10T60	PRUNEDALE	5/23/56	C.F. DOUGHERTY	8	28	68	76	DOM;	
13S/03E-10T61	PRUNEDALE	11/24/62	C.F. DOUGHERTY	8	40	80	88	DOM;	
13S/03E-10T62	PRUNEDALE	10/2/66	NUNES	8	40	80	88	DOM;	
13S/03E-10T63	PRUNEDALE	9/7/73	ASH & SONS				110	TEST WELL	
13S/03E-10T64	PRUNEDALE	4/12/79	CULLUM SYSTEMS	9	80	180	225	MUN;	
13S/03E-10T65	PRUNEDALE	2/20/54	C.F. DOUGHERTY	8	128	160	168	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-10T66	PRUNEDALE	3/11/63	C.F. DOUGHERTY	8	100	140	148	DOM;	
13S/03E-10T67	PRUNEDALE	1/13/65	C.F. DOUGHERTY	8	60	100	108	DOM;	
13S/03E-10T68	PRUNEDALE	2/24/66	C.F. DOUGHERTY	8	196	248	252	DOM;	
13S/03E-10T69	PRUNEDALE	3/10/61	C.F. DOUGHERTY	7	78	126	130	DOM;	
13S/03E-10T70	PRUNEDALE	11/28/61	C.F. DOUGHERTY	8	84	124	132	DOM;	
13S/03E-10T71	PRUNEDALE	3/6/79	AMERICAN HOME	7	250	465	465	DOM;	
13S/03E-10T72	PRUNEDALE	2/25/64	MELS DRILLING	8			200	DOM;	
13S/03E-10T73	PRUNEDALE	12/29/68	ASH & SONS	6	342	414	419	DOM;	
13S/03E-10T74	PRUNEDALE	7/6/62	C.F. DOUGHERTY	8	88	128	136	DOM;	
13S/03E-10T75	PRUNEDALE	10/8/66	NUNES	8	40	80	88	DOM;	
13S/03E-10T76	PRUNEDALE	3/5/79	CHAPPELL PUMP & SUPPLY	5	380	720	724	DOM	
13S/03E-14K50	PRUNEDALE	8/4/93	SALINAS PUMP CO	5	168	609	630	DOM	
13S/03E-14M01	PRUNEDALE	8/24/72	ASH & SONS	66	320	402	402	DOM;	
13S/03E-14N50	PRUNEDALE	1/12/50	C.F. DOUGHERTY	10	18	156	156	STOCK	
13S/03E-14N51	PRUNEDALE	7/4/86	ASH & SONS	5	407	443	480	DOM;	
13S/03E-14N52	PRUNEDALE	4/26/93	ASH & SONS	5	480	520	520	DOM	
13S/03E-14T50	PRUNEDALE	11/23/77	CLIFFORD PUMP & WELL	6	260	320	334	DOM	
13S/03E-14T51	PRUNEDALE	6/11/58	C.F. DOUGHERTY	8	32	72	80	DOM;	
13S/03E-14T52	PRUNEDALE	7/31/74	MAGGIORA BROS	6	100	215	220	DOM;	
13S/03E-14T53	PRUNEDALE	2/5/80	CHAPPELL PUMP & SUPPLY	7	190	370	380	DOM	
13S/03E-15B50	PRUNEDALE	3/23/82	ASH & SONS	5	342	392	394	DOM;	
13S/03E-15B51	PRUNEDALE	2/5/87	ASH & SONS	5	280	400	405	DOM;	
13S/03E-15C01	PRUNEDALE	5/4/56	C.F. DOUGHERTY	8	76	116	124	DOM;	
13S/03E-15C02	PRUNEDALE			8			179	DOM;	
13S/03E-15C50	PRUNEDALE	6/19/78	CULLUM SYSTEMS	9	130	250	265	DOM;	
13S/03E-15C51	PRUNEDALE	6/28/78	MAGGIORA BROS	6	85	290	300	DOM;	
13S/03E-15C52	PRUNEDALE	10/29/68	C.F. DOUGHERTY	8	160	272	280	DOM;	
13S/03E-15D01	PRUNEDALE			8			312	DOM;	
13S/03E-15D50	PRUNEDALE	3/19/87	ASH & SONS	5	410	450	460	DOM;	
13S/03E-15D51	PRUNEDALE	11/3/93	ASH & SONS	5	420	480	480	DOM	
13S/03E-15E50	PRUNEDALE	6/20/77	ASH & SONS	7	317	349	349	DOM;	
13S/03E-15F50	PRUNEDALE	2/24/90	MELVILLE & SON	8	280	490	500	MUN	
13S/03E-15G50	PRUNEDALE	5/17/77	ASH & SONS	7	234	266	266	DOM;	
13S/03E-15H50	PRUNEDALE	4/25/51	C.F. DOUGHERTY	8	40	150	167	DOM;	
13S/03E-15J50	PRUNEDALE	6/2/92	DOUGHERTY PUMP & DRILLING	5	40	80	80	MON;	
13S/03E-15J51	PRUNEDALE	6/3/92	DOUGHERTY PUMP & DRILLING	5	40	80	80	MON;	
13S/03E-15J52	PRUNEDALE	6/4/92	DOUGHERTY PUMP & DRILLING	5	40	80	80	MON;	
13S/03E-15J53	PRUNEDALE	6/4/92	DOUGHERTY PUMP & DRILLING				235		DES;
13S/03E-15K01	PRUNEDALE	6/22/76	ASH & SONS	7	265	297	297	DOM;	
13S/03E-15K50	PRUNEDALE	1/16/86	MAGGIORA BROS	6	130	350	390	DOM;	
13S/03E-15L01	PRUNEDALE	1/8/81	ASH & SONS	6	320	360	365	DOM;	
13S/03E-15L50	PRUNEDALE	1/10/86	MAGGIORA BROS	6	170	360	400	DOM;	
13S/03E-15L51	PRUNEDALE	8/27/93	ASH & SONS	5	366	406	406	DOM	
13S/03E-15M01	PRUNEDALE	12/8/83	ROMAN WELL	5	100	430	430	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-15N50	PRUNEDALE	7/21/77	ASH & SONS	7	280	312	312	DOM;	
13S/03E-15P01	PRUNEDALE	2/25/78	ROMAN WELL DRILLING	5	300	430	430	DOM;	
13S/03E-15P02	PRUNEDALE	9/18/77	ASH & SONS	7	289	497	497	DOM;	
13S/03E-15P50	PRUNEDALE	7/9/77	ASH & SONS	7	367	399	399	DOM;	
13S/03E-15P51	PRUNEDALE	8/30/77	ASH & SONS	7	395	427	427	DOM;	
13S/03E-15R50	PRUNEDALE	11/20/87	ASH & SONS	5	298	518	523	DOM;	
13S/03E-15R51	PRUNEDALE	7/4/50	C.F. DOUGHERTY	8	40	138	150	DOM;	
13S/03E-15R52	PRUNEDALE	9/20/77	MAGGIORA BROS	5	230	410	410	DOM;	
13S/03E-15R53	PRUNEDALE	2/20/90	ASH & SONS	5	422	542	545	DOM;	
13S/03E-15T50	PRUNEDALE	8/24/71	C.F. DOUGHERTY	7	204	304	312	DOM;	
13S/03E-15T51	PRUNEDALE	1/23/85	ASH & SONS	5	260	520	524	DOM;	
13S/03E-15T52	PRUNEDALE	11/18/78	CLIFFORD PUMP & WELL				331		
13S/03E-15T53	PRUNEDALE	8/13/62	JESS SLATE DRILLING	6	142	222	475	DOM;	
13S/03E-15T54	PRUNEDALE	7/28/76	ASH & SONS	7	290	322	322	DOM;	
13S/03E-15T55	PRUNEDALE	12/22/78	MAGGIORA BROS	9			810	TEST WELL	
13S/03E-15T56	PRUNEDALE	2/23/85	ASH & SONS	5	260	480	491	DOM;	
13S/03E-15T57	PRUNEDALE	1/15/77	MELVILLE DRILLING	7	200	264	272	DOM;	
13S/03E-15T58	PRUNEDALE	4/11/85	ASH & SONS	5	340	500	500	DOM;	
13S/03E-15T59	PRUNEDALE	8/25/78	MAGGIORA BROS	7	208	368	420	DOM;	
13S/03E-15T60	PRUNEDALE	9/21/76	ASH & SONS	7	280	313	313	DOM;	
13S/03E-15T61	PRUNEDALE	3/27/82	ASH & SONS	6	362	422	425	IRR;	
13S/03E-15T62	PRUNEDALE	10/7/76	CLIFFORD PUMP & WELL	6	180	200	205	DOM	
13S/03E-15T63	PRUNEDALE	5/6/78	ROMAN WELL DRILLING	7	265	446	446		
13S/03E-15T64	PRUNEDALE	1/13/76	MAGGIORA BROS	9	90	295	300	DOM;	
13S/03E-15T65	PRUNEDALE	9/27/76	ASH & SONS	7	277	309	309	DOM;	
13S/03E-15T66	PRUNEDALE	6/21/85	ASH & SONS	5	355	415	423	DOM;	
13S/03E-15T67	PRUNEDALE	9/19/80	ASH & SONS	5	294	334	340	DOM;	
13S/03E-15T68	PRUNEDALE	1/9/72	ASH & SONS	6	340	380	390	DOM;	
13S/03E-15T69	PRUNEDALE	7/15/76	ASH & SONS	7	232	264	264	DOM;	
13S/03E-15T70	PRUNEDALE	8/9/79	CHAPPELL PUMP & SUPPLY	6	50	170	410	DOM	
13S/03E-15T71	PRUNEDALE							DOM;MUN	
13S/03E-16A01	PRUNEDALE			8	150	160	160	DOM;	
13S/03E-16B01	PRUNEDALE	10/29/60	VALLEY PUMP	8	140	280	360	DOM;	
13S/03E-16C01	PRUNEDALE	8/3/54	DEATON	8	24	44	44	DOM;	
13S/03E-16C02	PRUNEDALE								
13S/03E-16C03	PRUNEDALE	6/2/66	C.F. DOUGHERTY	10	36	76	84	DOM;	
13S/03E-16C04	PRUNEDALE			10			313	DOM;	
13S/03E-16C50	PRUNEDALE	1/10/91	ASH & SONS	5	460	500	505	DOM;	
13S/03E-16C51	PRUNEDALE	9/28/75	ASH & SONS	7	280	314	314	MUN;	
13S/03E-16C52	PRUNEDALE	9/8/81	ASH & SONS	5	70	130	145		
13S/03E-16C53	PRUNEDALE	8/12/83	ASH & SONS	5	300	340	340	DOM;	
13S/03E-16C54	PRUNEDALE	9/12/79	ASH & SONS	7	360	400	400	DOM;	
13S/03E-16D50	PRUNEDALE	11/20/90	ASH & SONS	5	440	500	505	DOM;	
13S/03E-16D51	PRUNEDALE	8/25/81	ASH & SONS	8	160	200	203		

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-16D52	PRUNEDALE	3/25/88	ASH & SONS	5	445	505	521	DOM;	
13S/03E-16D53	PRUNEDALE	3/28/51	C.F. DOUGHERTY	8	48	69	78	DOM;	
13S/03E-16E01	PRUNEDALE	9/11/86	ASH & SONS	5	280	320	322	DOM;	
13S/03E-16E50	PRUNEDALE	4/28/73	ASH & SONS	7	280	316	316	DOM;	
13S/03E-16E51	PRUNEDALE	12/11/87	C.F. DOUGHERTY	6	280	360	360	DOM;	
13S/03E-16E52	PRUNEDALE	4/12/68	C.F. DOUGHERTY	7	292	352	367	DOM;	
13S/03E-16E53	PRUNEDALE	6/27/86	ASH & SONS	5	335	395	400	DOM;	
13S/03E-16E54	PRUNEDALE		ROBINETT & SONS		120	173	173	IRR;	
13S/03E-16E55	PRUNEDALE	11/17/93	ASH & SONS	6	290	350	350	DOM	
13S/03E-16F01	PRUNEDALE							DOM;	
13S/03E-16F50	PRUNEDALE	4/5/85	ASH & SONS	6	338	398	405	DOM;	
13S/03E-16F51	PRUNEDALE	4/26/85	ASH & SONS	6	200	296	425	DOM;	
13S/03E-16F52	PRUNEDALE	10/5/84	ASH & SONS	6	480	540	540	DOM;	
13S/03E-16G01	PRUNEDALE			10	200	0	364	DOM;	
13S/03E-16H01	PRUNEDALE	6/28/77	ASH & SONS	66	317	349	349	DOM;	
13S/03E-16H02	PRUNEDALE							DOM;	
13S/03E-16H50	PRUNEDALE	8/17/77	ASH & SONS	7	301	409	409	DOM;	
13S/03E-16H51	PRUNEDALE	11/3/87	ASH & SONS	5	280	320	323	DOM;	
13S/03E-16J01	PRUNEDALE	9/16/58	C.F. DOUGHERTY	10	104	244	252	DOM;	
13S/03E-16J02	PRUNEDALE	9/19/78	ROBINETT & SONS				352	DOM;	
13S/03E-16J03	PRUNEDALE			7	317	349	349	DOM;	
13S/03E-16J50	PRUNEDALE	7/15/78	ROMAN WELL DRILLING	8	270	370	370	DOM;	
13S/03E-16K01	PRUNEDALE							DOM;	
13S/03E-16K02	PRUNEDALE	9/16/58	C.F. DOUGHERTY	10	104	244	252	DOM;	
13S/03E-16K50	PRUNEDALE	12/18/90	ASH & SONS	5	380	420	430	DOM;	
13S/03E-16K51	PRUNEDALE	9/24/83	ASH & SONS	5	310	350	350	DOM;	
13S/03E-16K52	PRUNEDALE	6/14/91		5	440	500	502	DOM;	
13S/03E-16K53	PRUNEDALE	7/30/92	ASH & SONS	5	460	500	500	DOM	
13S/03E-16L50	PRUNEDALE	3/23/84	ASH & SONS	5	425	485	492	DOM;	
13S/03E-16L51	PRUNEDALE	9/8/66	C.F. DOUGHERTY	8	346	402	410	DOM;	DES
13S/03E-16M50	PRUNEDALE	7/22/74	ASH & SONS	7	282	378	408	DOM;	
13S/03E-16N01	PRUNEDALE	11/16/71	DOUGHERTY PUMP & DRILLING	8	272	312	324	DOM;	
13S/03E-16N02	PRUNEDALE	6/17/77	ASH & SONS	6			313	DOM;	
13S/03E-16N03	PRUNEDALE			8			230	DOM;	
13S/03E-16N50	PRUNEDALE	1/18/91	ASH & SONS	5	267	307	320	DOM;	
13S/03E-16N51	PRUNEDALE	8/29/68	C.F. DOUGHERTY	10	204	244	260	DOM;	
13S/03E-16N52	PRUNEDALE	5/31/85	ASH & SONS	5	435	495	501	DOM;	
13S/03E-16N53	PRUNEDALE	8/19/57	C.F. DOUGHERTY	8	244	284	292	DOM;	
13S/03E-16N54	PRUNEDALE	11/4/92	ASH & SONS	5	315	355	355	DOM	
13S/03E-16N55	PRUNEDALE		ASH & SONS				265		DES
13S/03E-16P50	PRUNEDALE	5/29/68	C.F. DOUGHERTY	8	304	344	352	DOM;	
13S/03E-16Q01	PRUNEDALE	7/21/77	ASH & SONS	66	279	503	503	DOM;	DES
13S/03E-16Q02	PRUNEDALE	8/4/78	ASH & SONS	66	304	548	548	DOM;	
13S/03E-16T50	PRUNEDALE	10/16/80	ASH & SONS	5	313	353	355	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-16T51	PRUNEDALE	5/28/60	C.F. DOUGHERTY	8	244	284	292	DOM;	
13S/03E-16T52	PRUNEDALE	6/30/72	ASH & SONS	6	320	356	370	DOM;	
13S/03E-16T53	PRUNEDALE	11/8/62	C.F. DOUGHERTY	8	200	292	300	DOM;	
13S/03E-16T54	PRUNEDALE	5/17/69	MAGGIORA BROS	30	15	45	45	DOM;	
13S/03E-16T55	PRUNEDALE	10/3/71	ASH & SONS	6	300	336	342	DOM;	
13S/03E-16T56	PRUNEDALE	8/30/61	C.F. DOUGHERTY	8	190	477	481	DOM;	
13S/03E-16T57	PRUNEDALE	5/22/63	C.F. DOUGHERTY	8	180	386	390	DOM;	
13S/03E-16T58	PRUNEDALE	12/17/63	C.F. DOUGHERTY	8	208	248	258	DOM;	
13S/03E-16T59	PRUNEDALE	5/11/76	ASH & SONS	7	368	400	400	DOM;	
13S/03E-16T60	PRUNEDALE	9/13/61	C.F. DOUGHERTY	8	112	152	160	DOM;	
13S/03E-16T62	PRUNEDALE	4/27/62	C.F. DOUGHERTY	8	168	236	240	DOM;	
13S/03E-16T63	PRUNEDALE	7/18/60	C.F. DOUGHERTY	8	270	305	320	DOM;	
13S/03E-16T64	PRUNEDALE	9/17/70	C.F. DOUGHERTY	8	252	292	300	DOM;	
13S/03E-16T65	PRUNEDALE	8/11/53	C.F. DOUGHERTY	8	288	318	327	DOM;	
13S/03E-16T66	PRUNEDALE	4/25/56	C.F. DOUGHERTY	8	252	292	300	DOM;	
13S/03E-16T67	PRUNEDALE	5/25/66	DEATON	8	60	100	100	DOM;	
13S/03E-16T68	PRUNEDALE	7/1/61	C.F. DOUGHERTY	8	172	212	220	DOM;	
13S/03E-16T69	PRUNEDALE	6/3/74	C.F. DOUGHERTY	10	160	220	235	DOM;	
13S/03E-16T70	PRUNEDALE	5/4/56	C.F. DOUGHERTY	8	76	116	124	DOM;	
13S/03E-16T71	PRUNEDALE	8/14/76	MELVILLE DRILLING	8	132	178	308	DOM;	
13S/03E-17A50	PRUNEDALE	6/13/88	C.F. DOUGHERTY	8	300	400	407	MULTIPLE	
13S/03E-17A51	PRUNEDALE	10/15/88	ASH & SONS	8	395	615	621	DOM;	
13S/03E-17B01	PRUNEDALE	10/12/54	C.F. DOUGHERTY	8	39	70	78	DOM;	
13S/03E-17B02	PRUNEDALE	9/25/80	ASH & SONS	5	320	356	356	DOM;	
13S/03E-17B03	PRUNEDALE	5/1/80	ASH & SONS	7	288	320	335	DOM;	
13S/03E-17B50	PRUNEDALE	10/30/87	DOUGHERTY PUMP & DRILLING	6	430	530	550	DOM;	
13S/03E-17C01	PRUNEDALE	2/25/69	THE PUMP SHOP	8	84	168	172	DOM;	
13S/03E-17C02	PRUNEDALE	7/3/61	C.F. DOUGHERTY	8	60	100	108	DOM;	
13S/03E-17C03	PRUNEDALE	10/1/61					108	DOM;	
13S/03E-17C50	PRUNEDALE	12/7/83	ASH & SONS	5	260	300	300	DOM;	
13S/03E-17C51	PRUNEDALE	10/12/54	C.F. DOUGHERTY	8	39	70	78	DOM;	
13S/03E-17C52	PRUNEDALE	2/20/89	C.F. DOUGHERTY	6	440	500	510	DOM;	
13S/03E-17C53	PRUNEDALE	5/19/93	ASH & SONS	6	370	410	410	DOM	
13S/03E-17D50	PRUNEDALE	6/30/84	ASH & SONS	5	230	270	280	DOM;	
13S/03E-17F01	PRUNEDALE	1/1/53	DEATON	8			65	DOM;	
13S/03E-17F02	PRUNEDALE	6/4/79	C.F. DOUGHERTY	8	244	284	392	DOM;	
13S/03E-17F50	PRUNEDALE	8/23/78	ASH & SONS	7	228	260	260	DOM;	
13S/03E-17F51	PRUNEDALE	12/23/76	ASH & SONS	7	280	312	312	DOM;	
13S/03E-17G01	PRUNEDALE	2/28/81	ASH & SONS	5	295	355	360	DOM;	
13S/03E-17G02	PRUNEDALE	5/25/79	ASH & SONS	9	418	458	458	DOM;	
13S/03E-17G50	PRUNEDALE	10/8/90	MAGGIORA BROS	4	65	95	95	MON	
13S/03E-17G51	PRUNEDALE	9/20/90	MAGGIORA BROS	4	35	45	45	MON	
13S/03E-17G52	PRUNEDALE	5/31/79	ASH & SONS	9	445	485	485	DOM;	
13S/03E-17G53	PRUNEDALE	9/9/81	ASH & SONS	5	140	180	185	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-17G54	PRUNEDALE	2/29/84	ASH & SONS	5	295	355	360	DOM;	
13S/03E-17G55	PRUNEDALE	5/14/85	ASH & SONS	5	315	375	385	DOM;	
13S/03E-17H50	PRUNEDALE	12/15/81	ASH & SONS	5	265	305	313	DOM;	
13S/03E-17H51	PRUNEDALE	5/27/89	ASH & SONS	5	403	443	450	DOM;	
13S/03E-17J50	PRUNEDALE	9/3/77	ASH & SONS	7	280	312	312	DOM;	
13S/03E-17J51	PRUNEDALE	5/12/50	C.F. DOUGHERTY	8	90	111	120	DOM;	
13S/03E-17J52	PRUNEDALE	10/29/92	ASH & SONS	5	480	540	540	DOM	
13S/03E-17K01	PRUNEDALE	1/12/84	ASH & SONS	6	310	350	350	DOM;	
13S/03E-17K50	PRUNEDALE	10/7/81	ASH & SONS	5	275	315	340	DOM;	
13S/03E-17K51	PRUNEDALE	2/7/89	ASH & SONS	5	285	325	330	DOM;	
13S/03E-17K52	PRUNEDALE	9/15/88	C.F. DOUGHERTY	5	240	320	320	DOM;	
13S/03E-17K53	PRUNEDALE	12/14/84	ASH & SONS	5	280	320	325	DOM;	
13S/03E-17K54	PRUNEDALE	8/12/85	ASH & SONS	5	260	300	303	DOM;	
13S/03E-17L01	PRUNEDALE	11/22/75	ASH & SONS	14	204	252	252	DOM;	
13S/03E-17L50	PRUNEDALE	7/17/78	ASH & SONS	7	219	251	251		
13S/03E-17L51	PRUNEDALE	10/18/88	C.F. DOUGHERTY				33		DES
13S/03E-17L52	PRUNEDALE	6/13/92	MAGGIORA BROS	4	30	40	40	MON	
13S/03E-17L53	PRUNEDALE	6/14/92	MAGGIORA BROS	4	30	40	40	MON	
13S/03E-17L54	PRUNEDALE	6/15/92	MAGGIORA BROS	4	2	8	10	MON	
13S/03E-17P50	PRUNEDALE	5/30/71	ASH & SONS	6	200	260	209	DOM;	
13S/03E-17P51	PRUNEDALE	11/4/88	ASH & SONS	5	280	320	330	DOM;	
13S/03E-17Q01	PRUNEDALE	4/11/49	C.F. DOUGHERTY	8	102	123	132	DOM;	
13S/03E-17Q02	PRUNEDALE	8/29/68	C.F. DOUGHERTY	10	204	244	260	DOM;	
13S/03E-17Q03	PRUNEDALE						150	DOM;	
13S/03E-17Q04	PRUNEDALE			12	302	456	481	DOM;	
13S/03E-17Q05	PRUNEDALE			8			188	DOM;	
13S/03E-17Q50	PRUNEDALE	6/2/92	DOUGHERTY PUMP & DRILLING	6	260	360	360	DOM;	
13S/03E-17R01	PRUNEDALE			8	200	297	300	DOM;	
13S/03E-17R02	PRUNEDALE			8			1001	DOM;	
13S/03E-17R03	PRUNEDALE	6/17/86	C.F. DOUGHERTY	6	220	320	330	DOM;	
13S/03E-17R50	PRUNEDALE	10/4/85	ASH & SONS	5	384	444	450	DOM;	
13S/03E-17R51	PRUNEDALE	7/11/85	ASH & SONS	5	320	360	363	DOM;	
13S/03E-17R52	PRUNEDALE	11/14/89	SALINAS PUMP CO	5	200	390	412	DOM;	
13S/03E-17R53	PRUNEDALE	2/5/88	ASH & SONS	5	360	400	405	DOM;	
13S/03E-17R54	PRUNEDALE	9/4/87	C.F. DOUGHERTY	6	240	320	320	DOM;	
13S/03E-17R55	PRUNEDALE	11/21/92	ASH & SONS	5	370	410	410	DOM	
13S/03E-17T50	PRUNEDALE	1/30/76	ASH & SONS	7	178	210	210	DOM;	
13S/03E-17T51	PRUNEDALE	5/17/62	C.F. DOUGHERTY	8	20	40	68	DOM;	
13S/03E-17T52	PRUNEDALE	6/11/54	C.F. DOUGHERTY	7	98	138	142	DOM;	
13S/03E-17T53	PRUNEDALE	12/20/61	C.F. DOUGHERTY	8	148	188	196	DOM;	
13S/03E-17T54	PRUNEDALE		ROBINETT & SONS	8	203	368	368	DOM;	
13S/03E-17T55	PRUNEDALE	9/24/63	C.F. DOUGHERTY	8	136	176	184	DOM;	
13S/03E-17T56	PRUNEDALE	11/21/80	ASH & SONS	6	212	252	260	DOM;	
13S/03E-17T57	PRUNEDALE	7/6/55	C.F. DOUGHERTY	8	36	68	76	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-17T58	PRUNEDALE	7/28/59	C.F. DOUGHERTY	8	56	96	104	DOM;	
13S/03E-17T59	PRUNEDALE	11/3/78	SALINAS PUMP CO	8	200	340	340	DOM;	
13S/03E-17T60	PRUNEDALE	5/16/66	C.F. DOUGHERTY	8	124	164	172	DOM;	
13S/03E-17T61	PRUNEDALE	6/5/64	C.F. DOUGHERTY	10	332	372	380	DOM;	
13S/03E-17T62	PRUNEDALE	6/5/80	ASH & SONS	6	220	260	260	DOM;	
13S/03E-17T63	PRUNEDALE	2/6/76	ASH & SONS	7	168	200	200	DOM;	
13S/03E-17T64	PRUNEDALE	5/12/71	C.F. DOUGHERTY	8	84	124	132	DOM;	
13S/03E-17T65	PRUNEDALE	2/25/63	C.F. DOUGHERTY	8	132	192	240	DOM;	
13S/03E-17T66	PRUNEDALE	8/23/79	ASH & SONS	5	220	260	260	DOM;	
13S/03E-17T67	PRUNEDALE	6/28/76	ASH & SONS	7	280	314	314	DOM;	
13S/03E-17T68	PRUNEDALE	4/30/55	C.F. DOUGHERTY	8	120	152	160	DOM;	
13S/03E-17T69	PRUNEDALE	7/30/76	ASH & SONS	7	304	338	338	DOM;	
13S/03E-17T70	PRUNEDALE	4/18/76	ASH & SONS	6	130	160	160	DOM;	
13S/03E-17T71	PRUNEDALE	6/16/81	ASH & SONS	5	160	205	212	DOM;	
13S/03E-17T72	PRUNEDALE	11/19/71	C.F. DOUGHERTY	8	140	180	188	DOM;	
13S/03E-17T73	PRUNEDALE	5/21/54	C.F. DOUGHERTY	8	40	72	80	DOM;	
13S/03E-17T74	PRUNEDALE	2/26/79	ASH & SONS	7	283	315	315	DOM;	
13S/03E-17T75	PRUNEDALE	7/21/55	C.F. DOUGHERTY	8	188	220	228	DOM;	
13S/03E-17T76	PRUNEDALE	5/8/65	C.F. DOUGHERTY	10	112	152	160	DOM;	
13S/03E-17T77	PRUNEDALE	1/19/63	C.F. DOUGHERTY	8	100	140	148	DOM;	
13S/03E-17T78	PRUNEDALE	7/29/66	C.F. DOUGHERTY	8	150	292	300	DOM;	
13S/03E-17T79	PRUNEDALE	3/24/80	C.F. DOUGHERTY	10	330	390	400	DOM;	
13S/03E-17T80	PRUNEDALE	8/2/93	ASH & SONS	5	240	320	320		
13S/03E-17T81	PRUNEDALE	5/13/59	C. F. DOUGHERTY	8	108	148	156	DOM	
13S/03E-18A50	PRUNEDALE	8/6/77	ASH & SONS	7	398	430	432	DOM;	
13S/03E-18A51	PRUNEDALE	1/17/86	ASH & SONS	5	340	380	400	DOM;	
13S/03E-18A52	PRUNEDALE	7/12/85	C.F. DOUGHERTY	8	315	415	460	DOM;	
13S/03E-18B50	PRUNEDALE	2/24/78	ASH & SONS	7	359	391	391	DOM;	
13S/03E-18B51	PRUNEDALE	9/2/83	ASH & SONS	5	440	480	480	DOM;	
13S/03E-18B52	PRUNEDALE	12/9/83	ASH & SONS	5	455	495	495	DOM;	
13S/03E-18B53	PRUNEDALE	12/23/83	ROBINETT & SONS	6	300	400	400	DOM;	
13S/03E-18C50	PRUNEDALE	10/18/55		12	360	457	476		
13S/03E-18G50	MORO COJO	4/19/88	ASH & SONS	5	328	368	380	DOM;	
13S/03E-18H01	PRUNEDALE			6	290	0	380	DOM;	
13S/03E-18H02	PRUNEDALE			6	330	0	360	DOM;	
13S/03E-18H50	PRUNEDALE	5/12/89	ASH & SONS	5	460	500	505	DOM;	
13S/03E-18H51	PRUNEDALE	5/16/89	ASH & SONS	5	390	430	440	DOM;	
13S/03E-18H52	PRUNEDALE	6/1/81	THORNTON	8		580	649	DOM;IRR;	
13S/03E-18J50	PRUNEDALE	9/5/79	C.F. DOUGHERTY	8	252	292	300	DOM;	
13S/03E-18L01	PRUNEDALE	1/1/57	EDSBERG				200	DOM;	
13S/03E-18M01	PRUNEDALE						275	DOM;	
13S/03E-18M50	PRUNEDALE	9/8/88	ASH & SONS	5	310	350	360	DOM;	
13S/03E-18T50	PRUNEDALE	1/23/66	ASH & SONS	6	280	320	346	DOM;	
13S/03E-18T51	PRUNEDALE	3/30/84	ASH & SONS	5	230	270	280	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-18T52	PRUNEDALE	11/22/80	MAGGIORA BROS	6	170	220	245	IRR;	
13S/03E-19A01	PRUNEDALE			6			255	DOM;	
13S/03E-19A50	PRUNEDALE	3/18/71	C.F. DOUGHERTY	8	112	152	160	DOM;	
13S/03E-19A51	PRUNEDALE	7/18/84	ASH & SONS	5	280	320	320	DOM;	
13S/03E-19A52	PRUNEDALE	8/2/85	ASH & SONS	5	260	300	340	DOM;	
13S/03E-19B50	PRUNEDALE	9/27/85	ASH & SONS	5	320	360	365	DOM;	
13S/03E-19B51	PRUNEDALE	11/3/52	NUNES	8	170	201	210	DOM;	
13S/03E-19C01	PRUNEDALE	9/8/72	DOUGHERTY PUMP & DRILLING	8	280	320	328	DOM;	
13S/03E-19C50	PRUNEDALE	7/12/88	ASH & SONS	5	256	296	300	DOM;	
13S/03E-19E50	PRUNEDALE	3/10/89	ASH & SONS	6	290	350	385	DOM;	
13S/03E-19F01	PRUNEDALE							DOM;	
13S/03E-19F02	PRUNEDALE	8/20/79	ASH & SONS	7	268	300	300	DOM;	
13S/03E-19F03	PRUNEDALE	10/6/76	DOUGHERTY PUMP & DRILLING	8	192	272	285	DOM;	
13S/03E-19F50	PRUNEDALE	3/7/79	CULLUM SYSTEMS	8	200	320	340	DOM;	
13S/03E-19G01	PRUNEDALE	1/29/75	ASH & SONS	7	243	275	295	DOM;	
13S/03E-19G50	PRUNEDALE	10/7/69	C.F. DOUGHERTY	8	192	232	240	DOM;	
13S/03E-19G51	PRUNEDALE	8/28/87	SALINAS PUMP CO	5	190	270	300	DOM;	
13S/03E-19G52	PRUNEDALE	10/1/50	C.F. DOUGHERTY	10	111	177	180	DOM;	
13S/03E-19G53	PRUNEDALE	8/13/82	ASH & SONS	5	327	367	399	DOM;	
13S/03E-19G54	PRUNEDALE	8/29/50	C.F. DOUGHERTY	8	159	180	189	DOM;	
13S/03E-19G55	PRUNEDALE	6/28/91	ASH & SONS		330	370	370	DOM	
13S/03E-19H01	PRUNEDALE	5/18/54	C.F. DOUGHERTY	10	132	188	192	DOM;	
13S/03E-19H50	PRUNEDALE	4/10/92	ASH & SONS						DES;
13S/03E-19H51	PRUNEDALE	3/31/92	ASH & SONS	5	195	235	235	DOM;	
13S/03E-19L01	PRUNEDALE			8	220	260	260	DOM;	
13S/03E-19L02	PRUNEDALE			8				DOM;	
13S/03E-19L50	PRUNEDALE	5/26/87	C.F. DOUGHERTY	6	220	280	285	DOM;	
13S/03E-19L51	PRUNEDALE	7/29/89	ASH & SONS	5	300	340	347	DOM;	
13S/03E-19M50	PRUNEDALE	8/19/83	ASH & SONS	5	250	290	290	DOM;	
13S/03E-19Q01	PRUNEDALE	10/8/51	WALKER	12			703	IRR;	
13S/03E-19T50	PRUNEDALE	7/6/64	C.F. DOUGHERTY	8	204	244	252	DOM;	
13S/03E-19T51	PRUNEDALE	8/15/63	C.F. DOUGHERTY	8	112	152	160	DOM;	
13S/03E-19T52	PRUNEDALE	8/26/75	ASH & SONS	7	200	232	245	DOM;	
13S/03E-19T53	PRUNEDALE	8/11/76	ASH & SONS	7	308	340	340	DOM;	
13S/03E-19T54	PRUNEDALE	5/7/72	ASH & SONS	6	280	316	325	DOM;	
13S/03E-19T55	PRUNEDALE	3/17/76	C.F. DOUGHERTY	8	264	312	320	DOM;	
13S/03E-19T56	PRUNEDALE	11/26/56	C.F. DOUGHERTY	8	68	108	116	DOM;	
13S/03E-19T57	PRUNEDALE	10/5/62	C.F. DOUGHERTY	8	100	140	148	DOM;	
13S/03E-19T58	PRUNEDALE	10/26/61	C.F. DOUGHERTY	8	152	312	360	DOM;	
13S/03E-19T59	PRUNEDALE	6/16/69	C.F. DOUGHERTY	8	92	132	140	DOM;	
13S/03E-19T60	PRUNEDALE	5/14/70	C.F. DOUGHERTY	8	184	224	232	DOM;	
13S/03E-19T61	PRUNEDALE	1/17/59	C.F. DOUGHERTY	7	236	304	310	DOM;	
13S/03E-19T62	PRUNEDALE	10/13/80	ASH & SONS	5	160	200	215	DOM;	
13S/03E-19T63	PRUNEDALE	1/2/78	C.F. DOUGHERTY	8	180	220	228	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-19T64	PRUNEDALE	4/24/52	C.F. DOUGHERTY	10	79	109	120	DOM;	
13S/03E-19T65	PRUNEDALE	10/1/75	ASH & SONS	7	288	324	335	DOM;	
13S/03E-19T66	PRUNEDALE	12/10/57	C.F. DOUGHERTY	8	104	144	152	DOM;	
13S/03E-19T67	PRUNEDALE	8/12/60	C.F. DOUGHERTY	8	208	248	256	DOM;	
13S/03E-19T68	PRUNEDALE	3/8/79	CULLUM SYSTEMS						DES
13S/03E-19T69	PRUNEDALE	5/19/54	C.F. DOUGHERTY	8	207	239	300	DOM;	
13S/03E-19T70	PRUNEDALE	6/20/60	C.F. DOUGHERTY	8	284	332	340	DOM;	
13S/03E-19T71	PRUNEDALE	5/23/71	ASH & SONS	6	228	260	272	DOM;	
13S/03E-19T72	PRUNEDALE	10/17/59	C.F. DOUGHERTY	8	180	232	240	DOM;	
13S/03E-19T73	PRUNEDALE	4/9/65	C.F. DOUGHERTY	7			380	DOM;	
13S/03E-19T74	PRUNEDALE	5/18/54	C.F. DOUGHERTY	10	132	188	192	DOM;	
13S/03E-19T75	PRUNEDALE	9/22/66	NUNES	8	120	160	168	DOM;	
13S/03E-19T76	PRUNEDALE	12/21/60	C.F. DOUGHERTY	10	184	244	252	IRR;	
13S/03E-19T77	PRUNEDALE	3/1/68	C. F. DOUGHERTY	8	112	152	160	DOM	
13S/03E-20A01	PRUNEDALE			8	176	216	224	DOM;	
13S/03E-20A50	PRUNEDALE	12/13/85	ASH & SONS	6	400	480	485	DOM;	
13S/03E-20A51	PRUNEDALE	8/5/92	ASH & SONS	5	397	437	437	DOM	
13S/03E-20B01	PRUNEDALE	5/9/55	C.F. DOUGHERTY	8	100	152	160	DOM;	DES;
13S/03E-20B02	PRUNEDALE							IRR;	
13S/03E-20B03	PRUNEDALE			8			142	DOM;	
13S/03E-20B04	PRUNEDALE						160	DOM;	
13S/03E-20B50	PRUNEDALE	12/22/88	ASH & SONS	5	200	240	244	DOM;	
13S/03E-20B51	PRUNEDALE	1/8/82	ASH & SONS	5	116	156	161	DOM;	
13S/03E-20B52	PRUNEDALE	4/30/87	ASH & SONS	5	320	365	365	DOM;	
13S/03E-20B53	PRUNEDALE	1/11/85	ASH & SONS	5	240	300	300	DOM;	
13S/03E-20B54	PRUNEDALE	8/24/89	C.F. DOUGHERTY	5	260	320	320	DOM;	
13S/03E-20B55	PRUNEDALE	9/18/87	C.F. DOUGHERTY	6	240	320	320	DOM;	
13S/03E-20B56	PRUNEDALE	1/31/92	ASH & SONS	5	280	320	320	DOM;	
13S/03E-20B57	PRUNEDALE	1/22/92	ASH & SONS				80		DES;
13S/03E-20C01	PRUNEDALE			6			65	DOM;	
13S/03E-20C50	PRUNEDALE	10/20/81	C.F. DOUGHERTY	8	178	218	224	DOM;	
13S/03E-20C51	PRUNEDALE	8/17/88	ASH & SONS	6	360	400	405	DOM;	
13S/03E-20C52	PRUNEDALE	5/16/88	ASH & SONS	8	320	440	450	IND;	
13S/03E-20C53	PRUNEDALE	5/12/88	ASH & SONS	8	320	440	500	IND;	
13S/03E-20D01	PRUNEDALE	7/16/57	C.F. DOUGHERTY	8	120	142	150	DOM;	
13S/03E-20D02	PRUNEDALE	3/4/55	C.F. DOUGHERTY		128	160	168	DOM;	
13S/03E-20D50	PRUNEDALE	2/2/79	C.F. DOUGHERTY	8	180	220	228	DOM;	
13S/03E-20D51	PRUNEDALE	3/16/90	ASH & SONS	5	278	318	325	IRR;	
13S/03E-20D52	PRUNEDALE	8/2/89	ASH & SONS	5	260	300	305	DOM;	
13S/03E-20D53	PRUNEDALE	4/16/87	ASH & SONS	5	310	350	365	DOM;	
13S/03E-20D54	PRUNEDALE	1/20/77	CLIFFORD PUMP & WELL	6	130	155	175	DOM/IRR	
13S/03E-20D55	PRUNEDALE	10/21/67	C.F. DOUGHERTY	10	207	565	565	DOM;	
13S/03E-20E01	PRUNEDALE	9/6/49	C.F. DOUGHERTY	8	30	51	60	DOM;	
13S/03E-20E02	PRUNEDALE			8	94	136	142	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-20E50	PRUNEDALE	10/23/68	C.F. DOUGHERTY	12	300	500	500	OTHER	DES;
13S/03E-20E51	PRUNEDALE	8/11/82	ASH & SONS	6	320	380	400	DOM;	
13S/03E-20F50	PRUNEDALE	9/11/61	C.F. DOUGHERTY	8	232	272	280	DOM;	
13S/03E-20F51	PRUNEDALE	10/28/88	ASH & SONS	5	360	400	403	DOM;	
13S/03E-20F52	PRUNEDALE	12/6/60	C.F. DOUGHERTY	8	104	292	292	DOM;	
13S/03E-20G01	PRUNEDALE	12/1/60	DUER		166	285	290	DOM;	
13S/03E-20G02	PRUNEDALE	7/18/86	ASH & SONS	5	340	380	383	DOM;	
13S/03E-20G50	PRUNEDALE	6/6/86	ASH & SONS	5	200	240	240	DOM;	
13S/03E-20G51	PRUNEDALE	8/24/50	C.F. DOUGHERTY	8	66	87	96	DOM;	
13S/03E-20G52	PRUNEDALE	1/19/80	SALINAS PUMP CO	12	216	504	505	DOM;	
13S/03E-20G53	PRUNEDALE							DOM;	
13S/03E-20H01	PRUNEDALE	3/14/49	C.F. DOUGHERTY	8	51	72	81	DOM;	
13S/03E-20H02	PRUNEDALE							DOM;	DES
13S/03E-20J50	PRUNEDALE	7/21/89	ASH & SONS	5	396	456	467	DOM;	
13S/03E-20K50	PRUNEDALE	4/8/88	ASH & SONS	5	300	360	366	DOM;	
13S/03E-20L50	PRUNEDALE	8/9/67	C.F. DOUGHERTY	8	32	72	80	DOM;	
13S/03E-20L51	PRUNEDALE	7/22/93	DOUGHERTY PUMP & DRILLING	6	290	390	390	DOM	
13S/03E-20L52	PRUNEDALE	4/17/81	DOUGHERTY PUMP & DRILLING	7	132	192	200	DOM	DEEP
13S/03E-20M01	PRUNEDALE			6			200	DOM;	
13S/03E-20M51	PRUNEDALE	9/2/88	ASH & SONS	8	400	520	524	DOM;	
13S/03E-20M52	PRUNEDALE	11/30/50	C.F. DOUGHERTY	8	144	165	174	DOM;	
13S/03E-20M53	PRUNEDALE	9/15/86	ASH & SONS	5	130	160	165	DOM;	
13S/03E-20M54	PRUNEDALE	1/4/90	ASH & SONS	5	160	200	205	DOM;	
13S/03E-20M55	PRUNEDALE	11/16/89	DOUGHERTY PUMP & DRILLING	5	180	240	245	DOM;	
13S/03E-20N50	PRUNEDALE	8/30/88	ASH & SONS	5	260	300	305	DOM;	
13S/03E-20N51	PRUNEDALE	2/4/52	NUNES	8	60	90	99	DOM;	
13S/03E-20P01	PRUNEDALE	7/8/55	NUNES WELL	8	148	164	192	IRR;	
13S/03E-20P50	PRUNEDALE	8/14/87	ASH & SONS	5	300	360	362	DOM;	
13S/03E-20P51	PRUNEDALE	3/8/88	ASH & SONS	5	260	300	310	DOM;	
13S/03E-20P52	PRUNEDALE	9/16/83	ASH & SONS	5	260	300	300	DOM;	
13S/03E-20Q01	PRUNEDALE	10/30/49	C.F. DOUGHERTY	8	115	136	145	DOM;	
13S/03E-20Q50	PRUNEDALE	7/11/86	ASH & SONS	5	320	360	365	DOM;	
13S/03E-20R50	PRUNEDALE	1/6/87	ASH & SONS	5	300	360	365	DOM;	
13S/03E-20R51	PRUNEDALE	6/10/93	ASH & SONS	5	320	360	360	DOM	
13S/03E-20T50	PRUNEDALE	1/1/51	ALSOP & SON				102		
13S/03E-20T51	PRUNEDALE	11/6/71	MAGGIORA BROS	8	160	180	185	IND;	
13S/03E-20T52	PRUNEDALE	8/16/72	ASH & SONS	7	120	156	160	DOM;	
13S/03E-20T53	PRUNEDALE	7/11/59	C.F. DOUGHERTY	8	32	72	80	DOM;	
13S/03E-20T54	PRUNEDALE	10/6/61	C.F. DOUGHERTY	7	177	197	201	DOM;	
13S/03E-20T55	PRUNEDALE	4/27/79	C.F. DOUGHERTY	8	160	200	208	DOM;	
13S/03E-20T56	PRUNEDALE	10/25/71	C.F. DOUGHERTY	8	164	264	272	DOM;	
13S/03E-20T57	PRUNEDALE	3/11/57	C.F. DOUGHERTY	8	28	68	76	DOM;	
13S/03E-20T58	PRUNEDALE	7/29/61	C.F. DOUGHERTY	8	36	76	84	DOM;	
13S/03E-20T59	PRUNEDALE	2/12/77	ASH & SONS	7	168	200	200	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-20T60	PRUNEDALE	12/22/56	C.F. DOUGHERTY	8	20	56	60	DOM;	
13S/03E-20T61	PRUNEDALE	1/22/60	C.F. DOUGHERTY	8	80	120	124	DOM;	
13S/03E-20T62	PRUNEDALE	3/8/62	C.F. DOUGHERTY	8	40	80	88	DOM;	
13S/03E-20T63	PRUNEDALE	6/25/60	C.F. DOUGHERTY	8	94	134	142	DOM;	
13S/03E-20T64	PRUNEDALE	5/2/61	C.F. DOUGHERTY	8	40	80	88	DOM;	
13S/03E-20T65	PRUNEDALE	6/26/61	C.F. DOUGHERTY	8	40	80	88	DOM;	
13S/03E-20T66	PRUNEDALE	7/4/53	C.F. DOUGHERTY	7	38	66	70	DOM;	
13S/03E-20T67	PRUNEDALE	2/26/73	C.F. DOUGHERTY	8	120	160	168	DOM;	
13S/03E-20T68	PRUNEDALE	6/23/64	C.F. DOUGHERTY	8	32	72	80	DOM;	
13S/03E-20T69	PRUNEDALE	2/17/65	C.F. DOUGHERTY	8	60	100	108	DOM;	
13S/03E-20T70	PRUNEDALE	12/9/52	C.F. DOUGHERTY	8	30	60	69	DOM;	
13S/03E-20T71	PRUNEDALE	10/1/56	NUNES	8	48	84	92	DOM;	
13S/03E-20T72	PRUNEDALE	3/26/71	ASH & SONS	6	112	145	160		
13S/03E-20T73	PRUNEDALE	3/12/79	ASH & SONS	7	259	291	291	DOM;	
13S/03E-20T74	PRUNEDALE	5/1/52	C.F. DOUGHERTY	8	132	162	171	DOM;	
13S/03E-20T75	PRUNEDALE	4/16/77	ASH & SONS	7	228	260	265	DOM;	
13S/03E-20T76	PRUNEDALE	3/20/71	THE PUMP SHOP	8	136	146	188	DOM;	
13S/03E-20T77	PRUNEDALE	3/27/76	ASH & SONS	7	172	204	204	DOM;	
13S/03E-20T78	PRUNEDALE	11/30/57	C.F. DOUGHERTY	8	28	68	76	DOM;	
13S/03E-20T79	PRUNEDALE	7/25/74	ASH & SONS	6	120	152	160	DOM;	
13S/03E-20T80	PRUNEDALE	10/13/61	C.F. DOUGHERTY	7	132	176	180	DOM;	
13S/03E-20T81	PRUNEDALE	12/29/67	C.F. DOUGHERTY	8	56	96	104	DOM;	
13S/03E-20T82	PRUNEDALE	2/9/52	C.F. DOUGHERTY	8	106	136	147	DOM;	
13S/03E-20T83	PRUNEDALE	10/5/56	C.F. DOUGHERTY	8	40	72	80	IRR;	
13S/03E-20T84	PRUNEDALE	1/27/60	C.F. DOUGHERTY	8	100	140	148	DOM;	
13S/03E-20T85	PRUNEDALE	5/17/73	C.F. DOUGHERTY	7	141	241	245	DOM;	
13S/03E-20T86	PRUNEDALE	8/13/65	C.F. DOUGHERTY	8	296	336	344	DOM;	
13S/03E-20T87	PRUNEDALE	9/12/57	C.F. DOUGHERTY	8			148	DOM;	
13S/03E-20T88	PRUNEDALE	7/1/68	THE PUMP SHOP		84	124	128	DOM;	
13S/03E-20T90	PRUNEDALE	2/11/61	C.F. DOUGHERTY	8	28	68	76	IRR;	
13S/03E-20T91	PRUNEDALE	1/21/66	C.F. DOUGHERTY	8	88	128	136	DOM;	
13S/03E-20T92	PRUNEDALE	5/4/64	C.F. DOUGHERTY	8	80	252	260	DOM;	
13S/03E-20T94	PRUNEDALE	1/1/51	ALSOP				102		
13S/03E-21E50	PRUNEDALE	8/4/77	ASH & SONS	7	248	280	280	DOM;	
13S/03E-21F01	PRUNEDALE	6/23/49	C.F. DOUGHERTY	10	214	235	244	DOM;	
13S/03E-21J01	PRUNEDALE			8			300	DOM;	
13S/03E-21K50	PRUNEDALE	1/17/89	ASH & SONS	5	340	400	412	DOM;	
13S/03E-21K51	PRUNEDALE	4/3/50	C.F. DOUGHERTY	8	213	234	243	DOM;	
13S/03E-21K52	PRUNEDALE	1/12/88	ASH & SONS	5	280	320	325	DOM;	
13S/03E-21K53	PRUNEDALE	5/25/50	C.F. DOUGHERTY	8	264	285	294	DOM;	
13S/03E-21L50	PRUNEDALE	9/17/68	C.F. DOUGHERTY	7	304	400	410	DOM;	
13S/03E-21L51	PRUNEDALE	11/8/93	DOUGHERTY PUMP & DRILLING	5	240	360	360	DOM	
13S/03E-21N50	PRUNEDALE	9/20/73	C.F. DOUGHERTY	8	312	352	360	DOM;	
13S/03E-21P01	PRUNEDALE			8			300	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-21P50	PRUNEDALE	11/19/81	C.F. DOUGHERTY	8	268	308	316	DOM;	
13S/03E-21P51	PRUNEDALE	2/28/55	C.F. DOUGHERTY	8	239	271	317	DOM;	
13S/03E-21P52	PRUNEDALE							DOM;MUN	
13S/03E-21P53	PRUNEDALE	7/23/93	ASH & SONS	5	400	440	440	DOM	
13S/03E-21Q01	PRUNEDALE	6/6/79	MAGGIORA BROS	12	250	340	370	DOM;	
13S/03E-21Q02	PRUNEDALE		ASH & SONS	7	498	563	563	DOM;	
13S/03E-21R01	PRUNEDALE	5/24/65		12			305	DOM;	
13S/03E-21R50	PRUNEDALE	6/27/50	C.F. DOUGHERTY	8	105	126	135	DOM;	
13S/03E-21T50	PRUNEDALE	4/19/57	C.F. DOUGHERTY	10	56	100	108	DOM;	
13S/03E-21T51	PRUNEDALE	4/30/53	C.F. DOUGHERTY	8	120	171	177	DOM;	
13S/03E-21T52	PRUNEDALE	8/31/55	C.F. DOUGHERTY	8	20	52	60	DOM;	
13S/03E-21T53	PRUNEDALE	9/6/58	C.F. DOUGHERTY	10	40	192	200	DOM;	
13S/03E-21T54	PRUNEDALE	1/21/64	C.F. DOUGHERTY	8	210	268	272	DOM;	
13S/03E-21T55	PRUNEDALE	6/30/76	ASH & SONS	7	170	202	202	DOM;	
13S/03E-21T56	PRUNEDALE	8/17/64	C.F. DOUGHERTY	8	176	216	224	DOM;	
13S/03E-21T57	PRUNEDALE	8/14/52	C.F. DOUGHERTY	8	60	90	99	DOM;	
13S/03E-21T58	PRUNEDALE	6/19/54	C.F. DOUGHERTY	8	168	200	208	DOM;	
13S/03E-21T59	PRUNEDALE	3/7/55	C.F. DOUGHERTY	8	180	212	220	DOM;	
13S/03E-21T60	PRUNEDALE	8/5/86	ASH & SONS	5	370	450	460	DOM;	
13S/03E-21T61	PRUNEDALE	6/4/59	C.F. DOUGHERTY	8	132	192	240	DOM;	
13S/03E-21T62	PRUNEDALE	10/20/81	ASH & SONS	5	380	430	430	DOM;	
13S/03E-21T63	PRUNEDALE	2/12/65	C.F. DOUGHERTY	8	156	196	204	DOM;	
13S/03E-21T64	PRUNEDALE	5/11/59	C.F. DOUGHERTY	8	60	100	108	DOM;	
13S/03E-21T65	PRUNEDALE	4/11/53	C.F. DOUGHERTY	8	186	216	225	DOM;	
13S/03E-21T66	PRUNEDALE	10/30/51	C.F. DOUGHERTY	8	99	120	129	DOM;	
13S/03E-21T67	PRUNEDALE	4/4/53	C.F. DOUGHERTY	8	125	155	164	DOM;	
13S/03E-21T68	PRUNEDALE	5/19/58	C.F. DOUGHERTY	8	136	176	188	DOM;	
13S/03E-21T69	PRUNEDALE	6/30/72	C.F. DOUGHERTY	8	260	300	308	DOM;	
13S/03E-21T70	PRUNEDALE	5/9/55	C.F. DOUGHERTY	8	100	152	160	DOM;	
13S/03E-22B50	PRUNEDALE	1/16/78	CLIFFORD PUMP & WELL	6	380	430	450	DOM	
13S/03E-22B51	PRUNEDALE	6/22/90	ASH & SONS	5	280	320	325	DOM;	
13S/03E-22B52	PRUNEDALE	12/22/76	ASH & SONS	7	328	360	360	DOM;	
13S/03E-22D50	PRUNEDALE	4/23/83	ASH & SONS	6	370	410	420	DOM;	
13S/03E-22D51	PRUNEDALE	11/4/81	ASH & SONS	6	360	410	415	DOM;	
13S/03E-22E01	PRUNEDALE			10			300	DOM;	
13S/03E-22E50	PRUNEDALE	1/31/94	DOUGHERTY PUMP & DRILLING	5	240	440	440	DOM	
13S/03E-22F01	PRUNEDALE	11/23/77	CLIFFORD PUMP & WELL	6	260	320	334	DOM	
13S/03E-22G50	PRUNEDALE	5/8/85	ALSOP & SON	5	110	380	400	DOM;	
13S/03E-22K50	PRUNEDALE	9/16/93	ASH & SONS	5	260	300	300	DOM	
13S/03E-22L01	PRUNEDALE	10/1/67	C.F. DOUGHERTY	8	148	308	320	DOM;	
13S/03E-22L50	PRUNEDALE	10/12/67	C.F. DOUGHERTY	8	148	308	320	DOM;	
13S/03E-22L51	PRUNEDALE	11/21/69	C.F. DOUGHERTY	8	165	276	284	DOM;	
13S/03E-22M50	PRUNEDALE	5/12/89	ASH & SONS	5	400	440	440	DOM;	
13S/03E-22N50	PRUNEDALE	1/25/68	C.F. DOUGHERTY	8	184	224	232	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-22N51	PRUNEDALE	12/2/70	C.F. DOUGHERTY	10	316	376	386	DOM;	
13S/03E-22N52	PRUNEDALE	10/26/68	THE PUMP SHOP		260	280	284	DOM;	
13S/03E-22N53	PRUNEDALE	10/7/87	ASH & SONS	5	280	320	325	DOM;	
13S/03E-22N54	PRUNEDALE	10/14/89	ASH & SONS	5	320	360	360	DOM;	
13S/03E-22P01	PRUNEDALE	4/23/49	C.F. DOUGHERTY	8	126	147	156	DOM;	
13S/03E-22P50	PRUNEDALE	9/22/89	ASH & SONS	5	340	380	381	DOM;	
13S/03E-22P51	PRUNEDALE	9/28/88	ASH & SONS	5	297	337	342	DOM;	
13S/03E-22P52	PRUNEDALE	7/3/77	ASH & SONS	7	181	223	223	DOM;	
13S/03E-22P53	PRUNEDALE		ASH & SONS				210		DES
13S/03E-22P54	PRUNEDALE	9/28/93	ASH & SONS	5	220	320	320	DOM	
13S/03E-22Q50	PRUNEDALE	10/28/86	ASH & SONS	5	305	345	350	DOM;	
13S/03E-22Q51	PRUNEDALE	5/24/91	DOUGHERTY PUMP & DRILLING	5	240	500	500	DOM	
13S/03E-22Q52	PRUNEDALE	1/17/91	DOUGHERTY PUMP & DRILLING	5	220	440	450	DOM	
13S/03E-22T50	PRUNEDALE	7/2/55	C.F. DOUGHERTY	8	117	225	229	DOM;	
13S/03E-22T51	PRUNEDALE	5/24/63	C.F. DOUGHERTY	8	100	140	144	DOM;	
13S/03E-22T52	PRUNEDALE	7/6/59	C.F. DOUGHERTY	8	156	196	204	DOM;	
13S/03E-22T53	PRUNEDALE	9/17/71	C.F. DOUGHERTY	8	264	304	312	DOM;	
13S/03E-22T54	PRUNEDALE	9/4/64	C.F. DOUGHERTY	8	140	180	188	DOM;	
13S/03E-22T55	PRUNEDALE	7/15/67	C.F. DOUGHERTY	7	245	373	385	DOM;	
13S/03E-22T56	PRUNEDALE	9/7/71	ASH & SONS	6	296	336	336	DOM;	
13S/03E-22T57	PRUNEDALE	1/14/59	C.F. DOUGHERTY	8	88	128	136	DOM;	
13S/03E-22T58	PRUNEDALE	8/27/54	DEATON	6			135	DOM;	
13S/03E-22T59	PRUNEDALE	6/12/79	SALINAS PUMP CO	8	50	292	300	DOM;	
13S/03E-22T60	PRUNEDALE	12/4/64	C.F. DOUGHERTY	8	100	172	180	DOM;	
13S/03E-22T61	PRUNEDALE	9/12/59	VALLEY PUMP	8	154	194	194	DOM;	
13S/03E-22T62	PRUNEDALE	11/11/55	C.F. DOUGHERTY	8	236	268	276	DOM;	
13S/03E-22T63	PRUNEDALE	7/27/54	C.F. DOUGHERTY	10	109	161	168	DOM;	
13S/03E-22T64	PRUNEDALE	10/27/72	C.F. DOUGHERTY	7	260	360	368	DOM;	
13S/03E-22T65	PRUNEDALE	3/12/55	C.F. DOUGHERTY	8	144	176	184	DOM;	
13S/03E-22T66	PRUNEDALE	12/20/57	C.F. DOUGHERTY	8	140	180	188	DOM;	
13S/03E-22T67	PRUNEDALE	8/25/55	C.F. DOUGHERTY	8	140	168	176	DOM;	
13S/03E-22T68	PRUNEDALE	3/3/56	C.F. DOUGHERTY	8	68	100	108	DOM;	
13S/03E-22T69	PRUNEDALE	5/2/84	ASH & SONS	5	300	340	355	DOM;	
13S/03E-22T70	PRUNEDALE	3/29/57	C.F. DOUGHERTY	8	92	132	140	DOM;	
13S/03E-22T71	PRUNEDALE	8/16/62	C.F. DOUGHERTY	10	90	192	200	DOM;	
13S/03E-22T72	PRUNEDALE	11/3/54	C.F. DOUGHERTY	8	220	252	260	DOM;	
13S/03E-22T73	PRUNEDALE	6/19/63	C.F. DOUGHERTY	8	84	124	132	DOM;	
13S/03E-22T74	PRUNEDALE	11/18/77	CLIFFORD PUMP & WELL	6	300	360	365	DOM	
13S/03E-22T75	PRUNEDALE	12/22/66	C.F. DOUGHERTY	7	251	347	355	DOM;	
13S/03E-22T76	PRUNEDALE	4/22/61	C.F. DOUGHERTY	8	108	148	156	DOM;	
13S/03E-22T77	PRUNEDALE	12/1/79	ALSOP & SON	5	280	400	400	DOM;	
13S/03E-22T78	PRUNEDALE	1/7/83	ASH & SONS	5	300	360	365	DOM;	
13S/03E-22T79	PRUNEDALE	12/3/59	C.F. DOUGHERTY	8	142	330	340	DOM;	
13S/03E-22T80	PRUNEDALE	3/25/76	C.F. DOUGHERTY	7	116	176	184	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-22T81	PRUNEDALE	11/1/56	C.F. DOUGHERTY	8	60	169	172	DOM;	
13S/03E-22T82	PRUNEDALE	8/25/60	C.F. DOUGHERTY	7	100	142	146	DOM;	
13S/03E-23D52	PRUNEDALE	9/8/92	HARDING LAWSON	4	7	22	22	MON	
13S/03E-23D53	PRUNEDALE	8/27/92	HARDING LAWSON	4	7	22	22	MON	
13S/03E-23F01	PRUNEDALE						300	DOM;	
13S/03E-23F50	PRUNEDALE	6/15/82	ASH & SONS	5	413	463	470	DOM;	
13S/03E-23M50	PRUNEDALE	5/22/84	ASH & SONS	5	328	368	424	DOM;	
13S/03E-23P50	PRUNEDALE	5/10/84	ASH & SONS	5	300	340	340	DOM;	
13S/03E-23T50	PRUNEDALE	10/5/90	ASH & SONS	5	50	560	565	IND;	
13S/03E-23T51	PRUNEDALE	2/27/87	ALL TERRAIN	5	57	75	81	MON	
13S/03E-23T52	PRUNEDALE		ALL TERRAIN	2	44	60	61	MON	
13S/03E-23T53	PRUNEDALE	2/20/87	ALL TERRAIN	2	58	75	76	MON	
13S/03E-23T54	PRUNEDALE	2/25/87	ALL TERRAIN	4	16	36	37	MON	
13S/03E-23T55	PRUNEDALE	3/10/87	ALL TERRAIN	4	16	36	36	MON	
13S/03E-23T56	PRUNEDALE	4/9/87	ALL TERRAIN	2	10	24	26	MON	
13S/03E-23T57	PRUNEDALE	4/9/87	ALL TERRAIN	2	30	45	46	MON	
13S/03E-23T58	PRUNEDALE	11/4/86	ALL TERRAIN	2	25	45	46	MON	
13S/03E-23T59	PRUNEDALE	5/5/75	ASH & SONS	6	169	205	205	DOM;	
13S/03E-23T60	PRUNEDALE	10/6/62	VALLEY PUMP	8	400	500	528	IRR;	
13S/03E-23T61	PRUNEDALE	4/10/87	ALL TERRAIN	2	28	48	50	MON	
13S/03E-23T62	PRUNEDALE	2/20/87	ALL TERRAIN	2	22	42	42	MON	
13S/03E-23T63	PRUNEDALE	11/7/86	ALL TERRAIN	2	20	40	41	MON	
13S/03E-23T64	PRUNEDALE	11/5/86	ALL TERRAIN	2	45	64	66	MON	
13S/03E-23T65	PRUNEDALE	11/10/86	ALL TERRAIN	2	25	45	46	MON	
13S/03E-23T66	PRUNEDALE	2/19/87	ALL TERRAIN	4	16	36	40	MON	
13S/03E-23T67	PRUNEDALE	3/4/87	ALL TERRAIN	6	23	53	60	MON	
13S/03E-23T68	PRUNEDALE	4/7/87	ALL TERRAIN	2	25	39	40	MON	
13S/03E-23T69	PRUNEDALE	8/10/72	C.F. DOUGHERTY	10	336	376	405	DOM;	
13S/03E-23T70	PRUNEDALE	8/10/66	VALLEY PUMP	8	100	400	400	DOM;	
13S/03E-23T71	PRUNEDALE	9/11/86	MAGGIORA BROS	2	50	65	66	MON	
13S/03E-23T72	PRUNEDALE	4/10/87	ALL TERRAIN	2	67	84	85	MON	
13S/03E-23T73	PRUNEDALE	11/11/86	ALL TERRAIN	2	20	35	36	MON	
13S/03E-23T74	PRUNEDALE	11/6/86	ALL TERRAIN	2	48	68	70	MON	
13S/03E-23T75	PRUNEDALE	10/24/78	MAGGIORA BROS				560	TEST WELL	
13S/03E-23T76	PRUNEDALE	10/21/78	MAGGIORA BROS	5	100	320	400	DOM;	
13S/03E-24T50	PRUNEDALE	1/15/60	C.F. DOUGHERTY	8	240	280	288	?	
13S/03E-24T51	PRUNEDALE	11/27/53	C.F. DOUGHERTY	8	157	201	205	DOM;	
13S/03E-24T52	PRUNEDALE	4/20/56	C.F. DOUGHERTY	8	152	192	200	DOM;	
13S/03E-24T53	PRUNEDALE	10/17/53	C.F. DOUGHERTY	8	212	244	252	DOM;	
13S/03E-24T54	PRUNEDALE	10/8/62	WESTERN DRILLING	12	205	552	673	IRR;	
13S/03E-24T55	PRUNEDALE	10/7/92	ASH & SONS	5	250	290	290	DOM;	
13S/03E-25B50	PRUNEDALE	11/11/83	SALINAS PUMP CO	5	55	170	170	DOM;IRR;	
13S/03E-25C50	PRUNEDALE	11/4/83	SALINAS PUMP CO	5	35	115	115	DOM;IRR;	
13S/03E-25K50	PRUNEDALE	5/4/88	ASH & SONS	5	200	240	240	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-25T53	S V GENERAL	10/20/76	CALIF LAND & CATTLE	6			50		
13S/03E-25T54	PRUNEDALE	7/24/76	CALIF LAND & CATTLE	14	14	48	48	IRR;	
13S/03E-25T55	PRUNEDALE	9/15/76	CALIF LAND & CATTLE	12	40	93	93	DOM;	
13S/03E-25T57	PRUNEDALE	3/1/75	SALINAS PUMP CO	16	24	54	55	DOM;	
13S/03E-25T58	PRUNEDALE	4/2/75	SALINAS PUMP CO	16	20	80	96	IRR;	
13S/03E-25T60	S V GENERAL	11/4/76	CALIF LAND & CATTLE	9			60		
13S/03E-25T62	PRUNEDALE	5/29/66	VALLEY PUMP	10	24	108	112	DOM;IRR;	
13S/03E-26B50	PRUNEDALE	4/14/88	ASH & SONS	5	450	500	505	DOM;	
13S/03E-26K01	PRUNEDALE	10/30/80	SALINAS PUMP CO	8	80	240	250	DOM;	
13S/03E-26K50	PRUNEDALE		ALSOP & SON				116	DOM;	
13S/03E-26Q50	PRUNEDALE	10/22/87	MAGGIORA BROS				427	TEST WELL	
13S/03E-26T50	PRUNEDALE	3/14/72	ASH & SONS	6	310	336	345	DOM;	
13S/03E-26T51	PRUNEDALE	10/10/66	C.F. DOUGHERTY	14	20	44	48	DOM;	
13S/03E-26T52	PRUNEDALE	7/2/76	CHAPPELL PUMP & SUPPLY	7	40	70	135	DOM	
13S/03E-26T53	PRUNEDALE	6/7/76	CALIF LAND & CATTLE	16	60	200	209		
13S/03E-26T54	PRUNEDALE	5/29/67	ALSOP	8	240	380	399	DOM;	
13S/03E-26T57	PRUNEDALE	5/9/75	CALIF LAND & CATTLE	14	25	80	87	IRR;	
13S/03E-27D01	PRUNEDALE	11/11/55	C.F. DOUGHERTY	8	236	268	276	DOM;	
13S/03E-27D50	PRUNEDALE	11/16/88	ASH & SONS	6	360	420	425	DOM;	
13S/03E-27T50	PRUNEDALE	1/24/75	C.F. DOUGHERTY	7	320	404	412	DOM;	
13S/03E-28B01	PRUNEDALE			6	300	0	345	DOM;	
13S/03E-28C01	PRUNEDALE	11/30/79		8			158	DOM;	
13S/03E-28D50	PRUNEDALE	7/9/85	ASH & SONS	5	380	420	425	DOM;	
13S/03E-28T50	PRUNEDALE	6/15/72	ASH & SONS	6	134	170	176	DOM;	
13S/03E-28T51	PRUNEDALE	7/21/76	C.F. DOUGHERTY	8	152	192	200	DOM;	
13S/03E-28T52	PRUNEDALE	11/5/53	C.F. DOUGHERTY	8	272	304	320	DOM;	
13S/03E-28T53	PRUNEDALE	7/12/74	ASH & SONS	6	174	202	210	DOM;	
13S/03E-28T54	PRUNEDALE	6/15/54	C.F. DOUGHERTY	8	40	72	80	DOM;	
13S/03E-28T55	PRUNEDALE	9/7/93	WEST COAST DRILLING	8	240	546	550	IRR	
13S/03E-29A01	PRUNEDALE	9/6/58	C.F. DOUGHERTY	10	40	192	200	DOM;	
13S/03E-29A02	PRUNEDALE	8/8/62	C.F. DOUGHERTY	10	90	192	200	DOM;	
13S/03E-29A50	PRUNEDALE	6/19/78	CHAPPELL PUMP & SUPPLY	7	170	350	350	DOM	
13S/03E-29B01	PRUNEDALE	6/27/49	C.F. DOUGHERTY	8	102	123	132		
13S/03E-29B02	PRUNEDALE	8/25/49	C.F. DOUGHERTY	8	78	108	108		
13S/03E-29B03	PRUNEDALE	3/9/61	DOUGHERTY PUMP & DRILLING	8	115	262	270	DOM;	
13S/03E-29B04	PRUNEDALE			8			210	DOM;	
13S/03E-29B50	PRUNEDALE	10/2/90	ASH & SONS	5	160	200	205	DOM;	
13S/03E-29B51	PRUNEDALE	5/20/88	ASH & SONS	5	260	300	303	DOM;	
13S/03E-29B52	PRUNEDALE	5/31/73	ASH & SONS	7	144	180	190	DOM;	
13S/03E-29B53	PRUNEDALE	1/24/86	ASH & SONS	5	200	260	263	DOM;	
13S/03E-29B54	PRUNEDALE	5/18/88	ASH & SONS	5	260	300	303	DOM;	
13S/03E-29B55	PRUNEDALE	7/29/86	C.F. DOUGHERTY	6	260	320	330	DOM;	
13S/03E-29B56	PRUNEDALE	12/20/90	C.F. DOUGHERTY	5	340	400	400	DOM;	
13S/03E-29B57	PRUNEDALE	1/19/88	ASH & SONS	5	260	300	303	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-29B58	PRUNEDALE	5/31/62	C.F. DOUGHERTY	8	148	188	200	DOM;	
13S/03E-29C01	PRUNEDALE			8			250	DOM;	
13S/03E-29C02	PRUNEDALE			8				DOM;	
13S/03E-29C03	PRUNEDALE							DOM;	
13S/03E-29C50	PRUNEDALE	5/17/82	ASH & SONS	5	180	220	225	DOM;	
13S/03E-29C51	PRUNEDALE	8/22/85	ASH & SONS	5	310	350	360	DOM;	
13S/03E-29C52	PRUNEDALE	3/11/92	ASH & SONS	6	260	300	300	DOM;	
13S/03E-29D01	PRUNEDALE			8			110	DOM;	
13S/03E-29D50	PRUNEDALE	12/29/89	ASH & SONS	5	148	188	190	DOM;	DES;
13S/03E-29D51	PRUNEDALE	2/24/89	ASH & SONS	6	300	340	350	DOM;	
13S/03E-29D52	PRUNEDALE	10/10/54	NUNES	8			170	DOM;	
13S/03E-29D53	PRUNEDALE	9/19/83	ASH & SONS	5	100	120	100	DOM;	
13S/03E-29D54	PRUNEDALE	11/5/69	ASH & SONS	6	200	240	252	DOM;	
13S/03E-29D55	PRUNEDALE	2/26/92	ASH & SONS	5	157	197	197	DOM;	
13S/03E-29D56	PRUNEDALE	9/22/93	ASH & SONS	8	360	500	500	IRR	
13S/03E-29D57	PRUNEDALE	2/15/91	DOUGHERTY PUMP & DRILLING	5	220	280	280	DOM	
13S/03E-29E01	PRUNEDALE			6			108	DOM	DESTROYED
13S/03E-29E02	PRUNEDALE			8			182	DOM;	
13S/03E-29E50	PRUNEDALE	1/19/79	C.F. DOUGHERTY	8	192	232	240	DOM;	
13S/03E-29E51	PRUNEDALE	10/17/84	ASH & SONS	5	140	180	190	DOM;	
13S/03E-29E52	PRUNEDALE	5/5/79	CHAPPELL PUMP & SUPPLY	6	100	175	175	DOM	
13S/03E-29E53	PRUNEDALE		DOUGHERTY PUMP & DRILLING				117		DES
13S/03E-29E54	PRUNEDALE	9/27/91	ASH & SONS	5	276	316	320	DOM	
13S/03E-29F01	PRUNEDALE			12			210	DOM;	
13S/03E-29F02	PRUNEDALE	10/25/77	C.F. DOUGHERTY	8			111	DOM;	
13S/03E-29F03	PRUNEDALE	11/1/37	C.F. DOUGHERTY	8	70	0	108	DOM;	
13S/03E-29F04	PRUNEDALE	5/9/80	ALSOP & SON	7	140	220	220	DOM;	
13S/03E-29F50	PRUNEDALE	6/30/51	C.F. DOUGHERTY	8	66	87	96	DOM;	
13S/03E-29F51	PRUNEDALE	9/25/92	DOUGHERTY PUMP & DRILLING	8	260	400	400	DOM	
13S/03E-29G01	PRUNEDALE	8/25/49	C.F. DOUGHERTY	8	78	108	108	DOM;	
13S/03E-29G02	PRUNEDALE	6/12/54	C.F. DOUGHERTY	8	40	72	80	DOM;	
13S/03E-29G03	PRUNEDALE	9/12/59	C.F. DOUGHERTY	10	72	112	120	DOM;	
13S/03E-29G04	PRUNEDALE			8			140	DOM;	
13S/03E-29G50	PRUNEDALE	8/25/92	ASH & SONS	5	200	240	240	DOM	
13S/03E-29H01	PRUNEDALE	4/25/72	ASH & SONS	6	200	236	240	DOM;	
13S/03E-29H50	PRUNEDALE	6/13/91	ASH & SONS	8			172		DES
13S/03E-29J01	PRUNEDALE	12/14/77	DOUGHERTY PUMP & DRILLING	8	224	284	292	DOM;	
13S/03E-29K01	PRUNEDALE	11/29/77	C.F. DOUGHERTY	10	128	327	335	DOM;	
13S/03E-29K50	PRUNEDALE	5/10/85	ASH & SONS	6	195	235	240	DOM;	
13S/03E-29L01	PRUNEDALE			10	145	160	163	DOM;	
13S/03E-29L50	PRUNEDALE	5/8/87	ASH & SONS	6	200	240	245	DOM;	
13S/03E-29L51	PRUNEDALE	6/8/78	C.F. DOUGHERTY	8	204	244	252	DOM;	
13S/03E-29L52	PRUNEDALE	10/16/93	SALINAS PUMP CO	5	200	320	320	DOM	
13S/03E-29M01	PRUNEDALE	7/11/59	C.F. DOUGHERTY	8	32	72	80	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-29M50	PRUNEDALE	6/23/51	C.F. DOUGHERTY	8	66	87	96	DOM;	
13S/03E-29M51	PRUNEDALE	10/22/72	ASH & SONS	7	120	156	156	DOM;	
13S/03E-29N50	PRUNEDALE	3/1/89	ASH & SONS	8	220	300	324	IRR	
13S/03E-29P01	PRUNEDALE	1/1/54		10	67	117	125	DOM;	
13S/03E-29P50	PRUNEDALE	10/23/84	ASH & SONS	5	240	300	305	DOM;	
13S/03E-29P51	PRUNEDALE	2/2/51	C.F. DOUGHERTY	8	147	168	177	DOM;	
13S/03E-29P52	PRUNEDALE	7/10/79	ASH & SONS	7	219	251	262	DOM;	
13S/03E-29P53	PRUNEDALE	6/24/71	C.F. DOUGHERTY	8	80	128	136	DOM;	
13S/03E-29P54	PRUNEDALE	3/9/92	ASH & SONS	5	140	180	180	DOM;	
13S/03E-29P55	PRUNEDALE	3/10/92	ASH & SONS						DES;
13S/03E-29P56	PRUNEDALE	6/1/93	SALINAS PUMP CO	6	100	320	320	DOM	
13S/03E-29T50	PRUNEDALE	7/3/76	ASH & SONS	7	138	170	170	DOM;	
13S/03E-29T51	PRUNEDALE	3/5/64	C.F. DOUGHERTY	8	88	128	136	DOM;	
13S/03E-29T52	PRUNEDALE	4/15/69	ASH & SONS	6	140	172	180	DOM;	
13S/03E-29T53	PRUNEDALE	11/11/75	C.F. DOUGHERTY	12	358	438	448	IRR;	
13S/03E-29T54	PRUNEDALE	2/5/53	C.F. DOUGHERTY	8	72	102	111	DOM;	
13S/03E-29T55	PRUNEDALE	5/3/77	ASH & SONS	7	148	180	180	DOM;	
13S/03E-29T56	PRUNEDALE	7/2/76	C.F. DOUGHERTY	8	132	212	220	DOM;	
13S/03E-29T57	PRUNEDALE	2/11/72	CLIFFORD PUMP & WELL	9	85	125	125	DOM	
13S/03E-29T58	PRUNEDALE	2/4/77	CLIFFORD PUMP & WELL	6	150	180	207	DOM	
13S/03E-29T59	PRUNEDALE	8/29/75	C.F. DOUGHERTY	8	160	200	208	DOM;	
13S/03E-29T60	PRUNEDALE	6/9/71	C.F. DOUGHERTY	8	132	172	180	DOM;	
13S/03E-29T61	PRUNEDALE	11/21/74	C.F. DOUGHERTY	8	160	200	208	DOM;	
13S/03E-29T62	PRUNEDALE	2/9/77	ASH & SONS	7	120	152	160	DOM;	
13S/03E-29T63	PRUNEDALE	6/18/54	C.F. DOUGHERTY	8	24	44	52	DOM;	
13S/03E-29T64	PRUNEDALE	9/11/75	C.F. DOUGHERTY	8	160	200	208	DOM;	
13S/03E-29T65	PRUNEDALE	6/18/54	C.F. DOUGHERTY	8	32	52	60	DOM;	
13S/03E-29T66	PRUNEDALE	6/15/71	C.F. DOUGHERTY	8	68	108	116	DOM;	DES
13S/03E-29T67	PRUNEDALE	12/13/59	C.F. DOUGHERTY	8	112	152	160	DOM;	
13S/03E-29T68	PRUNEDALE	5/21/54	C.F. DOUGHERTY	8	40	72	80	DOM;	
13S/03E-29T69	PRUNEDALE	2/26/72	C.F. DOUGHERTY	8	252	292	300	DOM;	
13S/03E-29T70	PRUNEDALE	5/29/74	ASH & SONS	7	134	155	160	DOM;	
13S/03E-29T71	PRUNEDALE	2/3/76	ASH & SONS	7	128	160	160	DOM;	
13S/03E-29T72	PRUNEDALE	8/6/60	C.F. DOUGHERTY	8	145	262	288	DOM;	
13S/03E-29T73	PRUNEDALE	7/19/74	C.F. DOUGHERTY	7	200	260	270	DOM;	
13S/03E-29T74	PRUNEDALE	3/2/72	C.F. DOUGHERTY	8	172	212	220	DOM;	
13S/03E-29T75	PRUNEDALE	8/20/63	C.F. DOUGHERTY	8	56	96	104	DOM;	
13S/03E-29T76	PRUNEDALE	12/24/84	MELVILLE & SON	6	200	300	320	DOM;	
13S/03E-29T77	PRUNEDALE	10/12/83	ROBINETT & SONS	5	165	265	265	DOM;	
13S/03E-30A01	PRUNEDALE	12/17/76	CHAPPELL PUMP & SUPPLY	9	200	315	320	DOM;	
13S/03E-30A50	PRUNEDALE	7/25/85	ASH & SONS	5	140	160	163	DOM;	
13S/03E-30A51	PRUNEDALE	11/24/82	ASH & SONS	5	140	180	180	DOM;	
13S/03E-30A52	PRUNEDALE	7/15/92	EATON DRILLING	16	320	700	700	IRR	
13S/03E-30B50	PRUNEDALE	5/18/78	C.F. DOUGHERTY	8	252	292	300	DOM;	

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
13S/03E-30D50	PRUNEDALE	1/17/89	ASH & SONS	6	320	360	370	DOM;	
13S/03E-30D51	PRUNEDALE	2/18/92	EATON DRILLING	16	605	705	705	IRR;	
13S/03E-30G01	PRUNEDALE	7/9/81	ASH & SONS	10	305	365	365	DOM;	
13S/03E-30H01	PRUNEDALE			10	220	272	280	DOM;	
13S/03E-30H02	PRUNEDALE	7/30/65	C.F. DOUGHERTY	10	200	412	420	DOM;	
13S/03E-30H50	PRUNEDALE	9/28/89	ASH & SONS	6	300	360	365	DOM;	
13S/03E-30H51	PRUNEDALE	7/24/87	ASH & SONS	6	360	400	425	DOM;	
13S/03E-30L01	PRUNEDALE	1/1/60	WALKER	12	220	312	328	DOM;	
13S/03E-30M50	PRUNEDALE	7/3/79	ASH & SONS	7	277	317	317	DOM;	
13S/03E-30P01	PRUNEDALE						703	IRR;	
13S/03E-30T50	PRUNEDALE	10/17/52	C.F. DOUGHERTY	8	201	231	240	DOM;	
13S/03E-30T51	PRUNEDALE	11/15/79	ASH & SONS	9	360	400	400	DOM;	
13S/03E-30T52	PRUNEDALE	7/7/53	C.F. DOUGHERTY	8	41	71	70	DOM;	
13S/03E-30T53	PRUNEDALE	10/9/64	C.F. DOUGHERTY	8	40	80	88	DOM;	
13S/03E-30T54	PRUNEDALE	10/23/58	C.F. DOUGHERTY	8	60	100	108	DOM;	
13S/03E-30T55	PRUNEDALE	5/27/83	ASH & SONS	5	200	240	240	DOM;	
13S/03E-30T56	PRUNEDALE	4/24/74	ASH & SONS	7	170	204	204	DOM	
13S/03E-30T57	PRUNEDALE	8/20/73	ROBINETT & SONS	8	249	309	309	DOM;	
13S/03E-30T58	PRUNEDALE	11/15/58	C.F. DOUGHERTY	8	186	216	218	DOM;	
13S/03E-30T59	PRUNEDALE	8/24/65	C.F. DOUGHERTY	10	145	206	252	DOM;	
13S/03E-30T60	PRUNEDALE	7/30/65	C.F. DOUGHERTY	10	352	412	420	DOM;	
13S/03E-30T61	PRUNEDALE	7/15/65	C.F. DOUGHERTY	10	352	412	420	MUN;	
13S/03E-30T62	PRUNEDALE	12/27/74	MAGGIORA BROS	8	380	410	415	DOM;IRR;	
13S/03E-30T63	PRUNEDALE	8/9/89	MAGGIORA BROS				820	TEST;	
13S/03E-30T64	PRUNEDALE	10/14/93	LANDINO CONSTRUCTION	10	300	400	400	DOM;IRR	
13S/03E-31A50	PRUNEDALE	12/16/72	ASH & SONS	7	200	236	236	DOM	
13S/03E-31J01	PRUNEDALE	7/12/78	SALINAS PUMP CO		254	566	556	DOM;	
13S/03E-32B50	PRUNEDALE	7/6/68	VALLEY PUMP	8	10	40	40	IRR;	
13S/03E-32F02	PRUNEDALE	5/11/49	C.F. DOUGHERTY	8	42	63	72	DOM;	
13S/03E-32J50	PRUNEDALE	2/16/83	ASH & SONS	5	164	204	204	DOM;	
13S/03E-32K01	PRUNEDALE				228	268	276	DOM;	
13S/03E-32P01	PRUNEDALE						284	DOM;	
13S/03E-35G50	PAJARO-SPRINGFIELD	10/5/92	CHAPPELL PUMP & SUPPLY	10	200	340	350	IRR	
13S/03E-80T50	PRUNEDALE	6/17/61	C.F. DOUGHERTY	8	104	144	152	DOM;	
13S/03E-80T51	PRUNEDALE	7/20/70	C.F. DOUGHERTY	8	228	268	276	DOM;	
13S/03E-80T52	PRUNEDALE	9/19/62	C.F. DOUGHERTY	10	35	64	72	DOM;	
13S/03E-80T53	PRUNEDALE	12/16/61	C.F. DOUGHERTY	10			208	DOM;	
13S/03E-80T54	PRUNEDALE	7/23/70	C.F. DOUGHERTY	8	76	116	124	DOM;	
13S/03E-80T55	PRUNEDALE	7/10/69	THE PUMP SHOP	8	344	384	400	DOM;	
13S/03E-80T56	PRUNEDALE	3/11/64	C.F. DOUGHERTY	8	288	328	336	DOM;	
13S/03E-80T57	PRUNEDALE	10/19/70	C.F. DOUGHERTY	7	130	174	178	DOM;	
13S/03E-80T58	PRUNEDALE	11/5/71	ASH & SONS	6	422	462	474	DOM;	
14S/02E-03T50	PRUNEDALE	7/22/70	ALSOP	14	363	613	617	IRR;	
Cabana					207	565			

State Well No	Area	Date Drilled	Driller	Casing Diam	Perf Top	Perf Bottom	Depth	Use	Status
Cabana Holiday									
Clark						232	240		
Dolan No. 1									
Fryou						340	345		
Glenn Ave W.S.									
Holman						300	360		
Kiewit						500			
Netzel									
Niazmand #1						480	480		
Normco W.S. -									
PG & E No. 8									
Pine View WS						410	414		
Pine View WS						444	450		
Royal Oaks Pl.									
Royal Oaks Pl.									
San Miguel W.S.									
Shoemaker						160	320		
Strawberry Rd.									
Thompson						312	320		
Vega Rd W.S. #1									
Vega Road #2							150		
Vega Road #5						204	287		
Vega Road #7							300		
Vierra Cyn W.S.									

APPENDIX C
AQUIFER TESTING

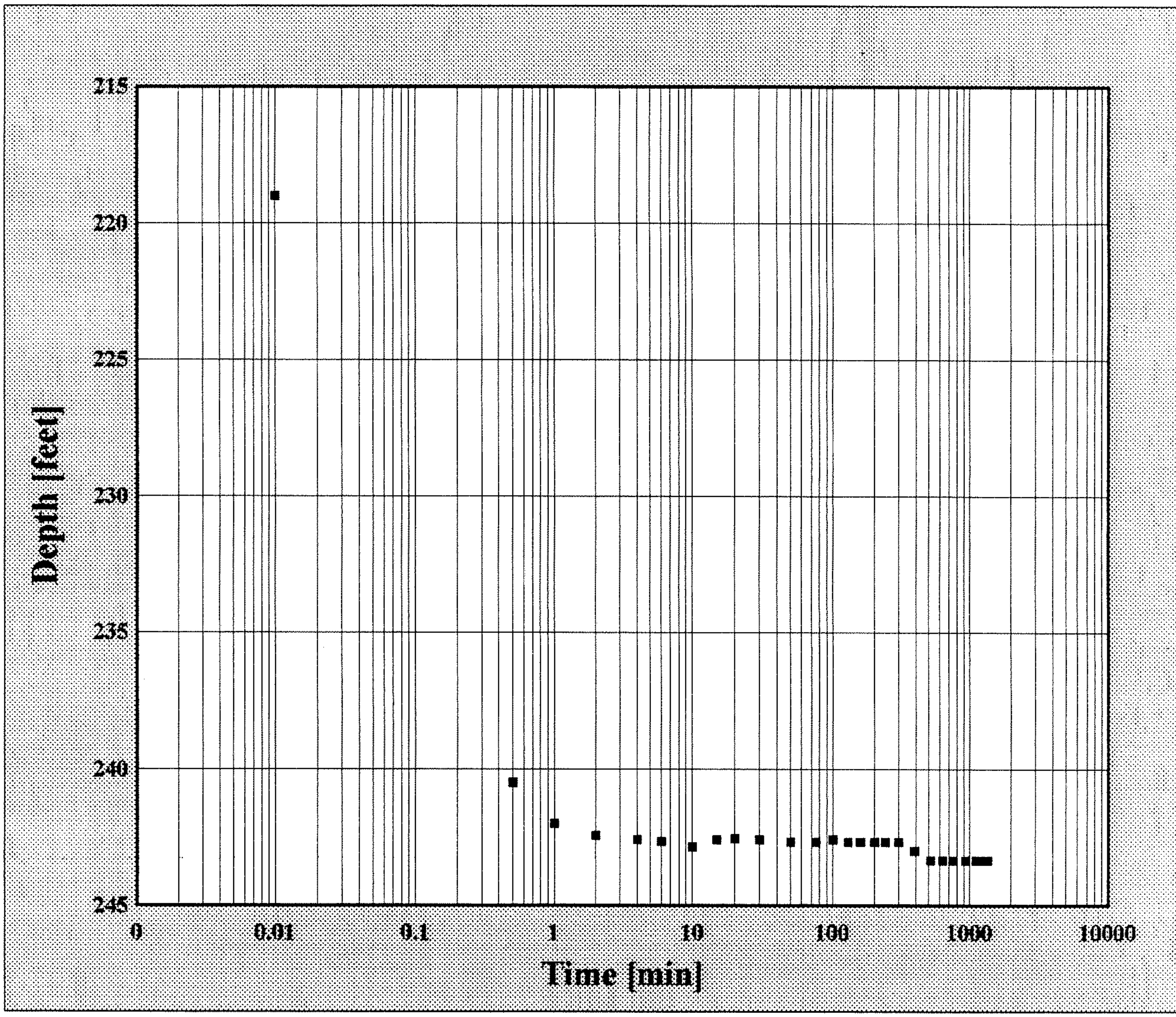
North Monterey County - Pumping Test Summary

Well Ident	Name
ROP2	Royal Oaks Park Well No.2

Test Date	Average Pump. Rate [gpm]	Duration [min]	SWL (ft)
04/11/95	100.000	1350.0	217.93

Results

PWL (ft)	SpecCap (gpm/ft)
243.25	3.95



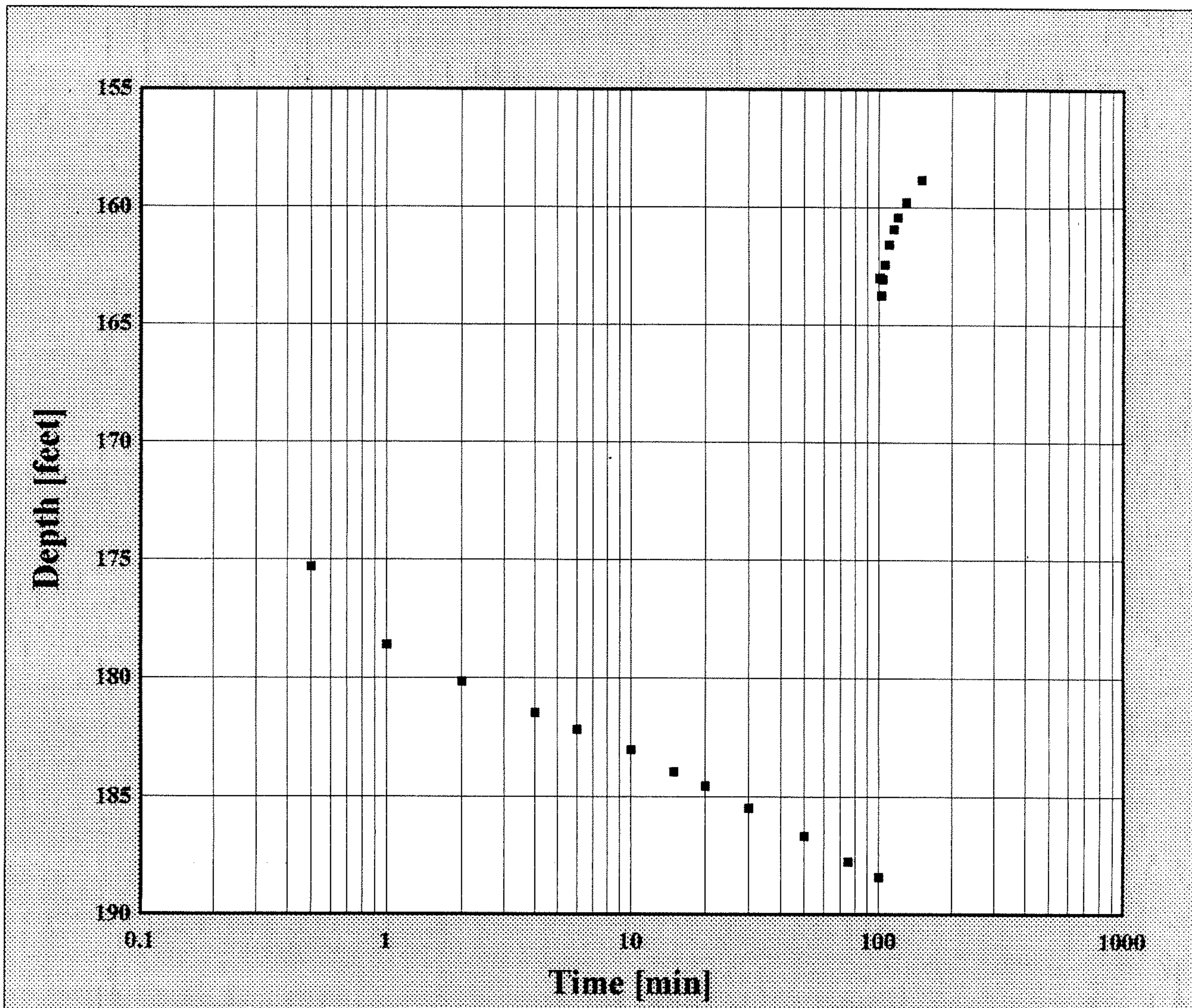
North Monterey County - Pumping Test Summary

Well Ident	Name
13S/02E-24T02	Cal-Water Oak Hills Sta.202

Test Date	Average Pump. Rate [gpm]	Duration [min]	SWL (ft)
04/06/95	412.00	150.00	156.22

Results

PWL (ft)	SpecCap (gpm/ft)
188.40	12.88



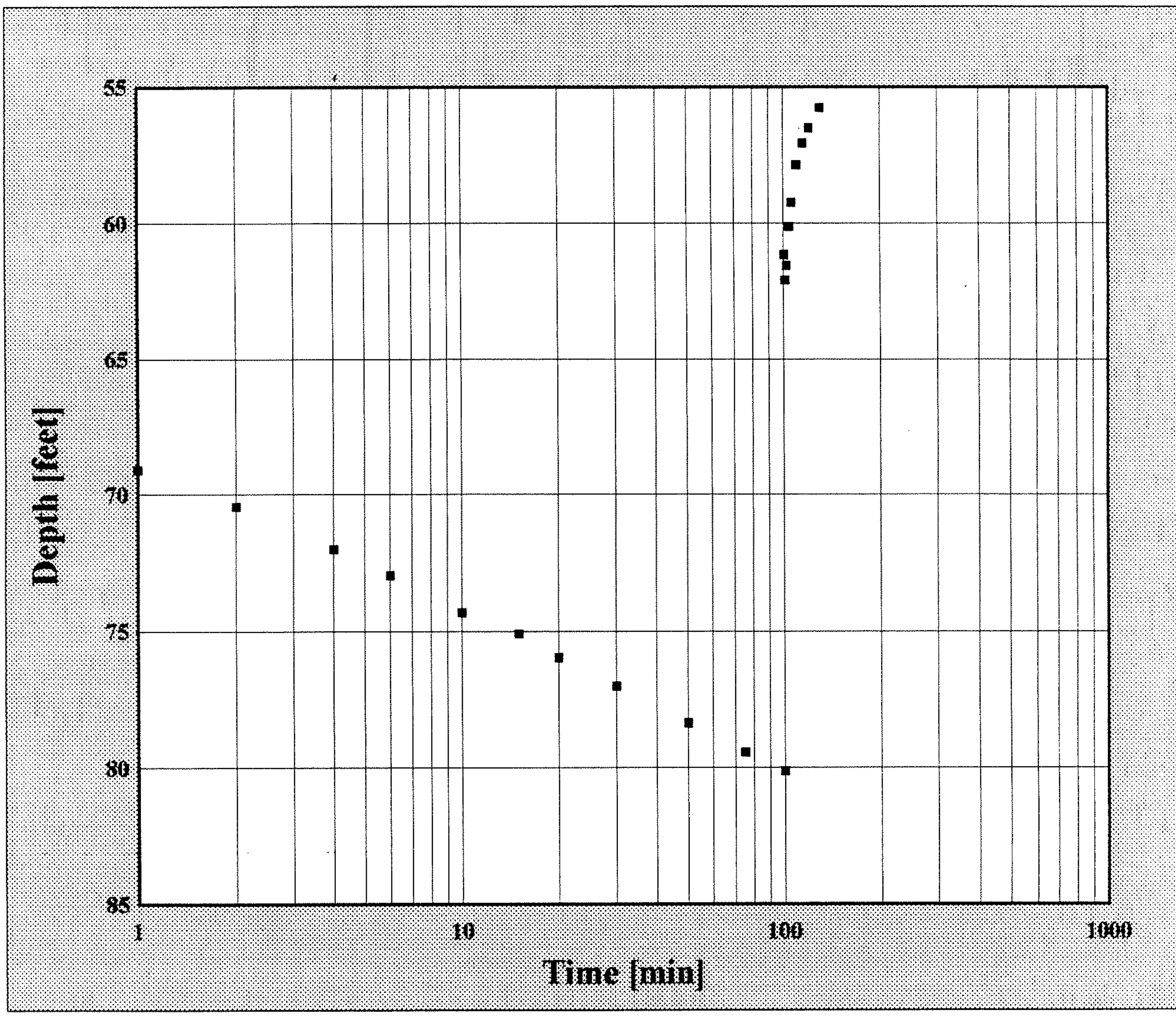
North Monterey County - Pumping Test Summary

Well Ident	Name
13S/02E-26C01	Cal-Water Oak Hills Sta.203

Test Date	Average Pump. Rate [gpm]	Duration [min]	SWL (ft)
04/05/95	585.00	130.00	52.14

Results

PWL (ft)	SpecCap (gpm/ft)
80.13	20.90



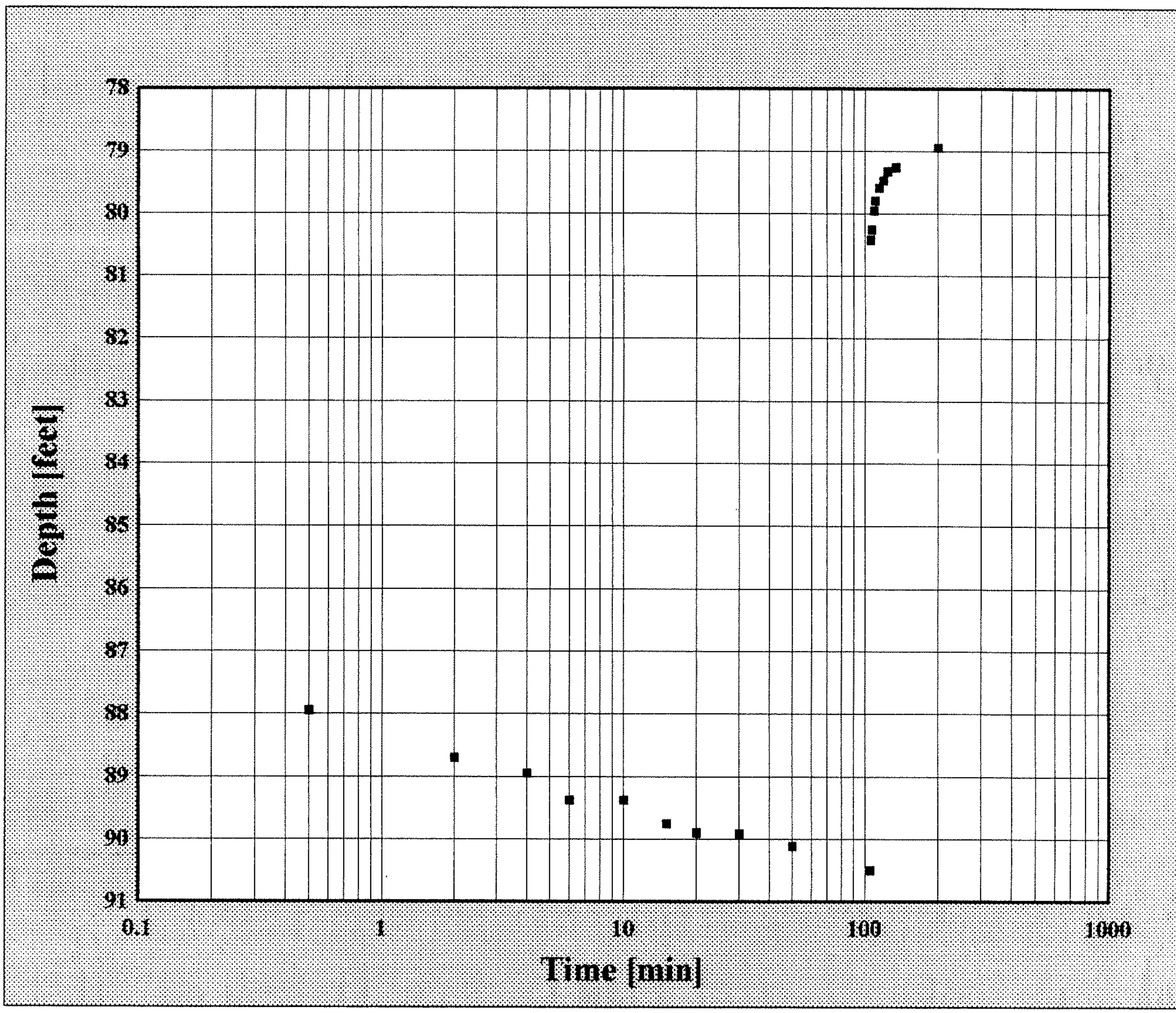
North Monterey County - Pumping Test Summary

Well Ident	Name
12S/02E-22Q50	Cal-Water Las Lomas Sta.303

Test Date	Average Pump. Rate [gpm]	Duration [min]	SWL (ft)
04/05/95	475.00	200.00	79.25

Results

PWL (ft)	SpecCap (gpm/ft)
90.50	42.50



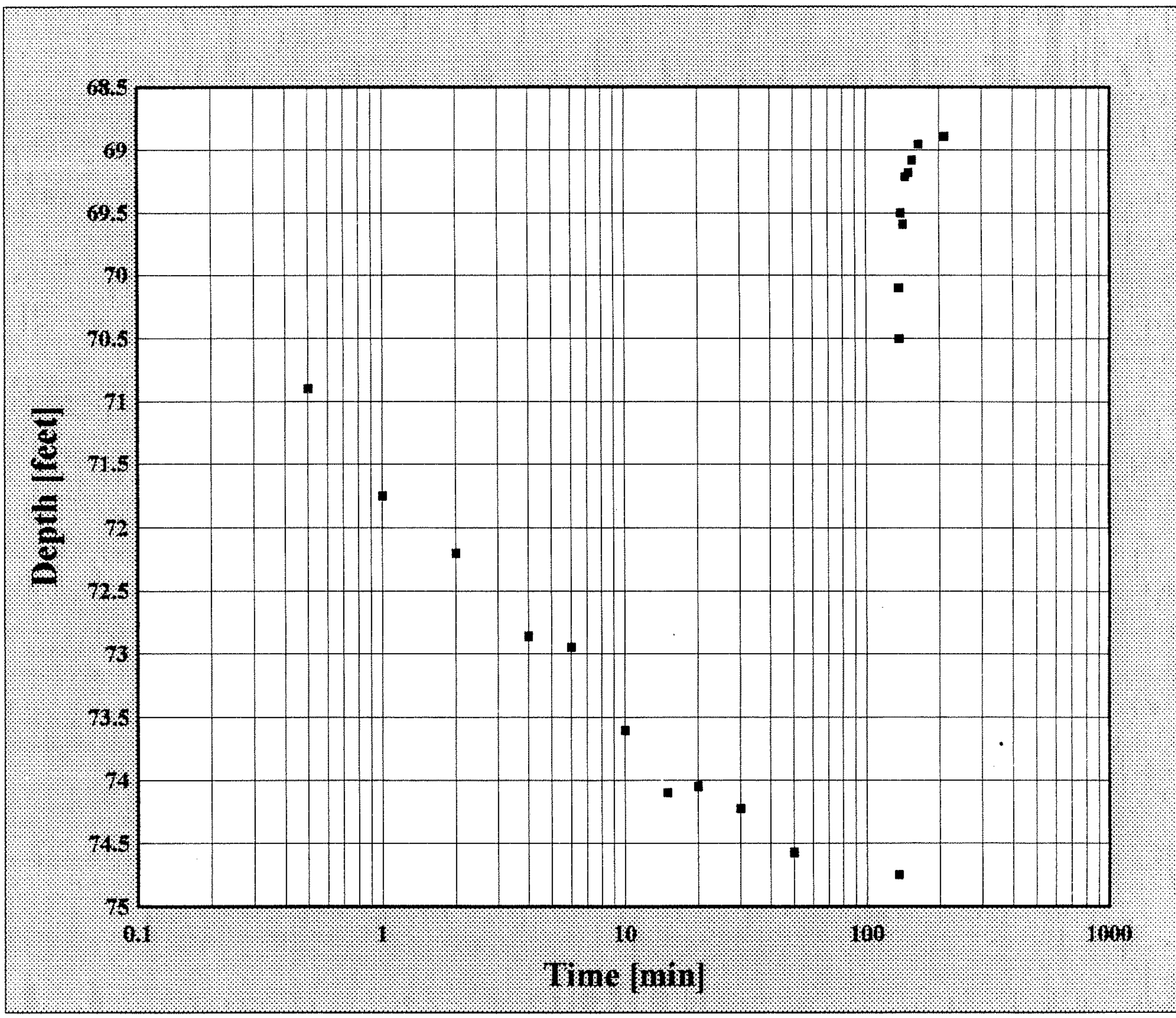
North Monterey County - Pumping Test Summary

Well Ident	Name
12S/02E-27?	Cal-Water Las Lomas Sta.301

Test Date	Average Pump. Rate [gpm]	Duration [min]	SWL (ft)
04/05/95	150.00	210.00	68.57

Results

PWL (ft)	SpecCap (gpm/ft)
74.75	24.20



AQUIFER TEST DATA

Owner Cal-Water Address Holly Oak Wy - Oak Hills County Monterey State CA

Date 4/6/95 Company performing test Fugro West Measured by R. Marks

Well No. 202 Distance from pumping well – Type of test Time Drawdown Test No. 1

Measuring equipment Sounder - No Meter

Time Data
Pump on: Date ____ Time ____ (t)
Pump off: Date ____ Time ____ (t')
Duration of aquifer test:
Pumping ____ Recovery ____

Water Level Data
Static water level 156.22
Measuring point Top of S.T
Elevation of measuring point 130

Discharge Data
How Q measured ____
Depth of pump/air line ____
Previous pumping? Yes ____ No ____
Duration ____ End ____

Comments on factors affecting test data

412 per PG&E 1994 (Buddy)

Date	Clock time	Time since pump started t	Time since pump stopped t'	t/t'		Water level measurement	Correction or Conversion	Water level	Water level change s or s'		Discharge measurement	Rate		Comments
4/6	10:35	0				156.22								
		0.5				175.3								6" Q-Line
		1				178.6								68 psi upstream
		2				180.15								of Gate Valve
		4				181.45								
	10:41	6				182.18								
	10:45	10				183.05								
	10:50	15				183.96								68 psi
	10:55	20				184.55								
	11:05	30				185.47								
	11:25	50				186.67								
	11:50	75				187.76								67.8 psi
	12:15	100				188.4								67.3 psi
			0.5			158.3								Well / Pump
			1			163								Top of Bowls - 240
			2			163.75								Btm Intake - 258
			4			163.05								Top " - 257
			6			162.43								
	12:25		10			161.57								Btm Well 463
	12:30		15			160.93								Perf 299-463
	12:35		20			160.41								
	12:45		30			159.75								Byron Jks, 10 stgs
	13:05		50			158.84								

AQUIFER TEST DATA

Owner Cal Water Address Colonial Oaks - Oak Hills County Monterey State CA

Date 4/5/95 Company performing test Fugro West Measured by R. Marks

Well No. 203 Distance from pumping well - Type of test Time Drawdown Test No. 1

Measuring equipment Sounder - Totalizing Meter

Time Data	Water Level Data	Discharge Data	Comments on factors affecting test data
Pump on: Date ____ Time ____ (t) Pump off: Date ____ Time ____ (t') Duration of aquifer test: Pumping ____ Recovery ____	Static water level 52.14' Measuring point Top S.T Elevation of measuring point 35	How Q measured Totalizer Depth of pump/air line ____ Previous pumping? Yes ____ No X Duration ____ End ____	

Date	Clock time	Time since pump started t	Time since pump stopped t'	t/t'		Water level measurement	Correction or Conversion	Water level	Water level change s or s'		Discharge measurement	Rate		Totalizer 46011275 cf
4/5	14:30	0				52.14								Throttle Back to 110 psi
		0.5												= 78 cfm
		1				69.1								
		2				70.45								
		4				72.0								
		6				72.96					78 cfm	583 gpm		
		10				74.31					77 cfm	576		
		15				75.1					76	568		110 psi
		20				75.97					78	583		
	15:00	30				77.01					78.5	587		
	15:20	50				78.38					"	"		
	15:45	75				79.45					"			
	16:10	100	0			60.13					"			
			0.5			61.15								
			1			62.08								
			2			61.55								
			4			60.12								Top Pump Bowls 170
			6			59.22								Intake Btm - 180
			10			57.87								" Top - 179
			15			57.06								GE, 91 Amps, 480 volts
	16:30	120	20			56.5								3 phase, 75 Hp, 1770
		130	30			55.75								
														Perf 200 - 620
														Btm well 640
														Aurora 9 stgs

AQUIFER TEST DATA

Owner Cal Water Address Las Lomas County Monterey State CA

Date 4/5/95 Company performing test Fugro West Measured by R. Marks

Well No. 303 Distance from pumping well — Type of test Time Drawdown Test No. 1

Measuring equipment Sounder - Digital Flow Meter

Time Data
Pump on: Date ___ Time ___ (t.)
Pump off: Date ___ Time ___ (t')
Duration of aquifer test:
Pumping 105 Recovery 95

Water Level Data
Static water level 79.25
Measuring point Top of S.T
Elevation of measuring point 69'

Discharge Data
How Q measured Dig. Flow Data Ind.
Depth of pump/air line —
Previous pumping? Yes Y No ___
Duration 10 min End ~3.5 hrs prior to test

Comments on factors affecting test data

Date	Clock time	Time since pump started t	Time since pump stopped t'	t/t'		Water level measurement	Correction or Conversion	Water level	Water level change s or s'		Discharge measurement	Rate		Comments
4/5		70				79.25								
		70.5				87.95								
		71												
		72				88.7								
		74				88.95					476	gpm		
		76				89.17								
		80				89.38					471			
		85				89.75					484			Δ Values → pump
		90				89.80					479			to waste from
		100				89.91								System
		120				90.11					479			
		175	0			90.50					478			
			0.5			80.42								
			1											
			2			80.25								
			4			79.95								GE, 114 Amps, 230 v!-
			6			79.80								3 phs, 50 Hp, 1780 R
		185	10			79.59								
		190	15			79.47								Top Bowls 120
		195	20			79.32								Top Intake 126' 3"
		205	30			79.26								Btm " -127'5"
		270	95			78.95								Peerless, 8 stgs, 9½0
														perf- 290-320
														350-390
														410-420
														440-450
														480-500

AQUIFER TEST DATA

Owner Cal - Water Address Hall Road - Las Lomas County ____ State ____

Date 3/5/95 Company performing test Fugro West Measured by R. Marks

Well No. 301 Distance from pumping well — Type of test Time - Drawdown Test No. 1

Measuring equipment Sounder - Totalizing Meter

Time Data	Water Level Data	Discharge Data	
Pump on: Date ____ Time ____ (t.) Pump off: Date ____ Time ____ (t'.) Duration of aquifer test: Pumping 135 Recovery 75	Static water level 68.57 Measuring point Top of Sounding Tube Elevation of measuring point 51	How Q measured Totalizer Depth of pump/air line ____ Previous pumping? Yes X No ____ Duration 45 mins End 2 hrs prior to test	Comments on factors affecting test data

Date	Clock time	Time since pump started t	Time since pump stopped t'	t/t'		Water level measurement	Correction or Conversion	Water level	Water level change s or s'		Discharge measurement	Rate		Comments
4/5		0				68.57								
		0.5				70.9						149.6		
		1		—		71.75								
		2				72.2								
		4				72.86					20 cfm			
		6				72.25								
		10				73.6					20 cfm			
		15				74.1								
		20				74.05					20 cfm			
		30				74.23					20 cfm			
		50				74.57								
		100												
		130				74.75					20 cfm			
		135	0			74.75								
			0.5			70.5								
			1			70.1								
			2											
			4			69.5								
			6			69.59								
		145	10			69.21								
		150	15			69.18								
		155	20			69.08								
		165	30			68.95								
		210	75			68.89								

Pumping Tests - General Data

Well Ident	AvgPRate	Transmissivity	Storage	Leakance
12S/02E-22Q50	475.00	249476		
12S/02E-27?	149.60	67669		
13S/02E-24T02	412.00	35699		
13S/02E-26C01	585.00	37316		
ROP2	100.000			

APPENDIX D
WATER LEVEL - CHEMICAL HYDROGRAPHS

North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-14N01

Area: PRUNEDALE

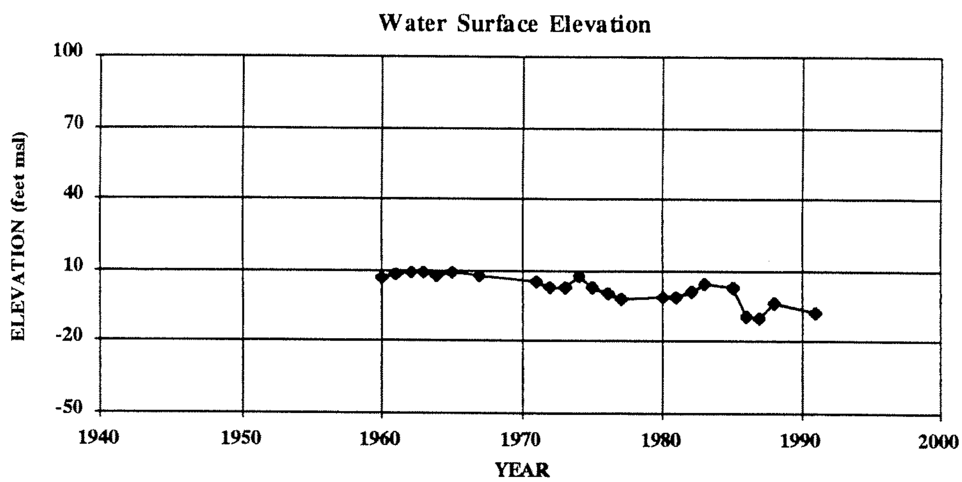
Use: IRRIGATION

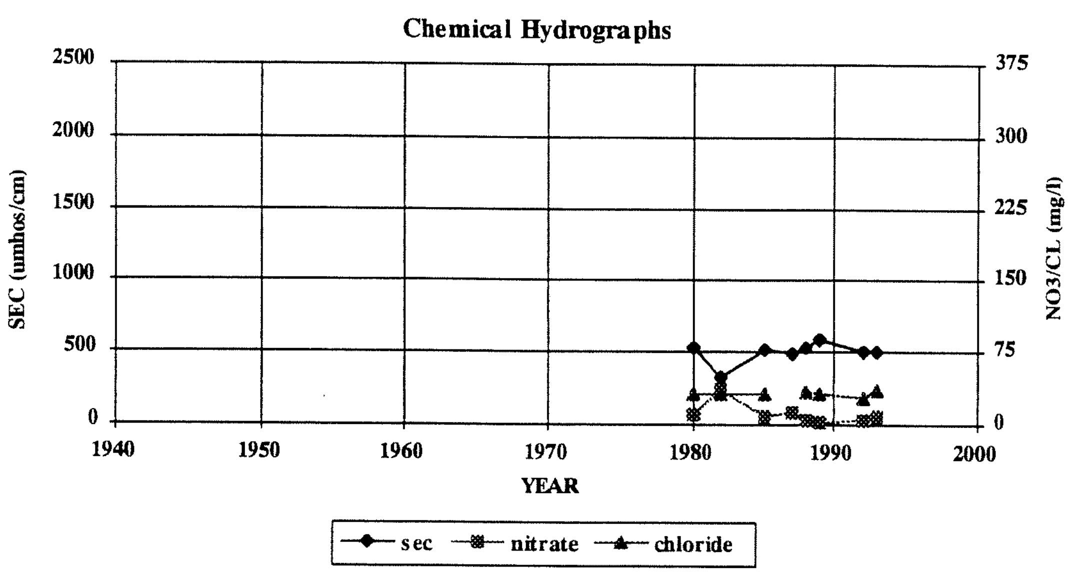
Ground Surface Elevation: 60

Perforation Rng Elevations -130 - -210

Depth: 274

Perforation Range: 190 - 270





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-14Q01

Area: PRUNEDALE

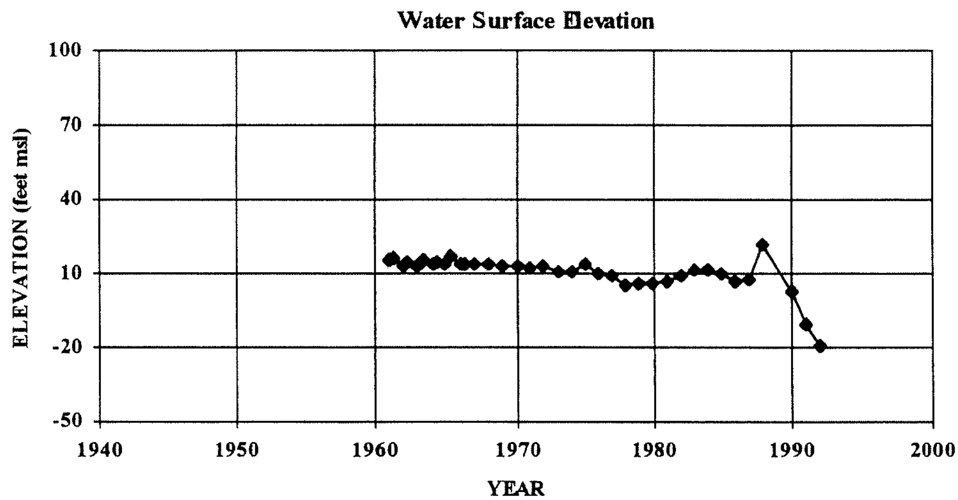
Use: IRRIGATION

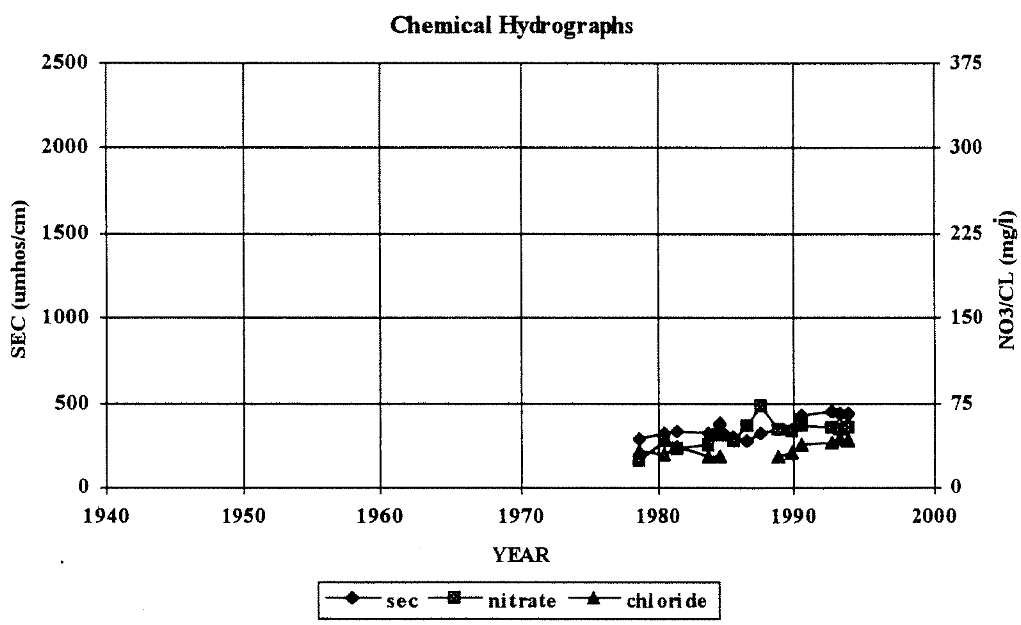
Ground Surface Elevation: 160

Perforation Rng Elevations: -20 - -60

Depth: 220

Perforation Range: 180 - 220





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-25A01

Area: PRUNEDALE

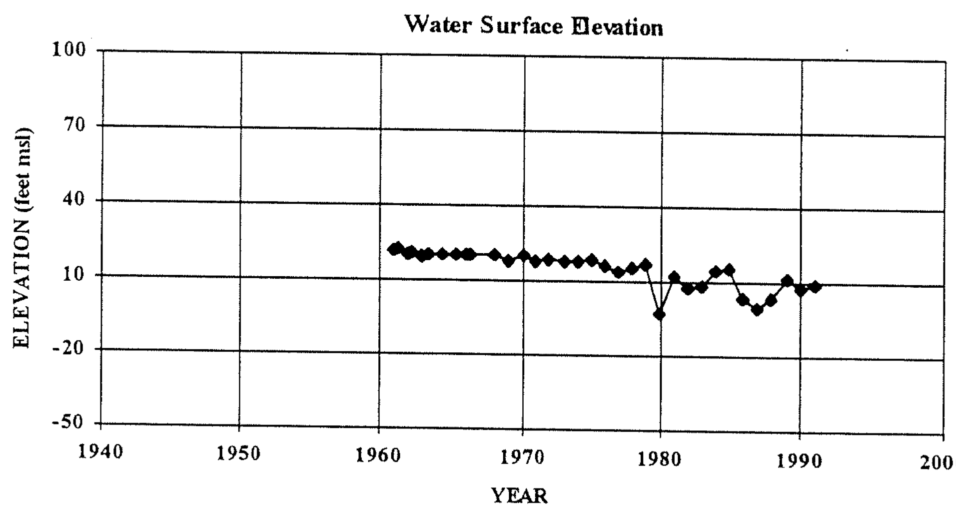
Use: DOMESTIC

Ground Surface Elevation: 200

Perforation Rng Elevations: 0 - -40

Depth: 248

Perforation Range: 200 - 240



North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-25K01

Area: PRUNEDALE

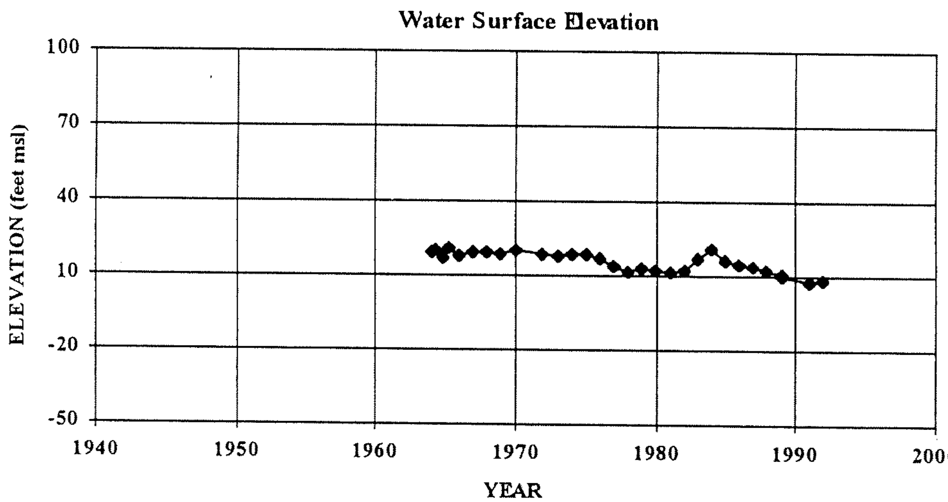
Use: DOMESTIC

Ground Surface Elevation: 30

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data



North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-25N01

Area: PRUNEDALE

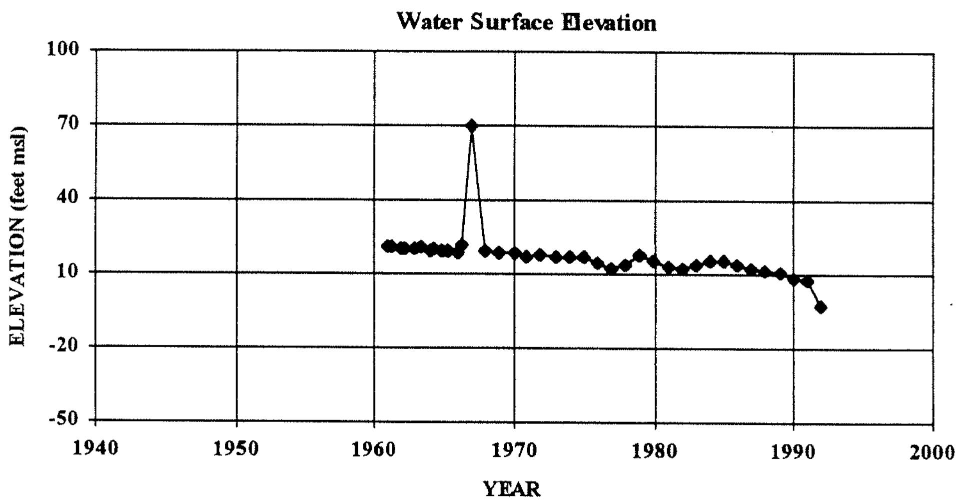
Use: DOMESTIC

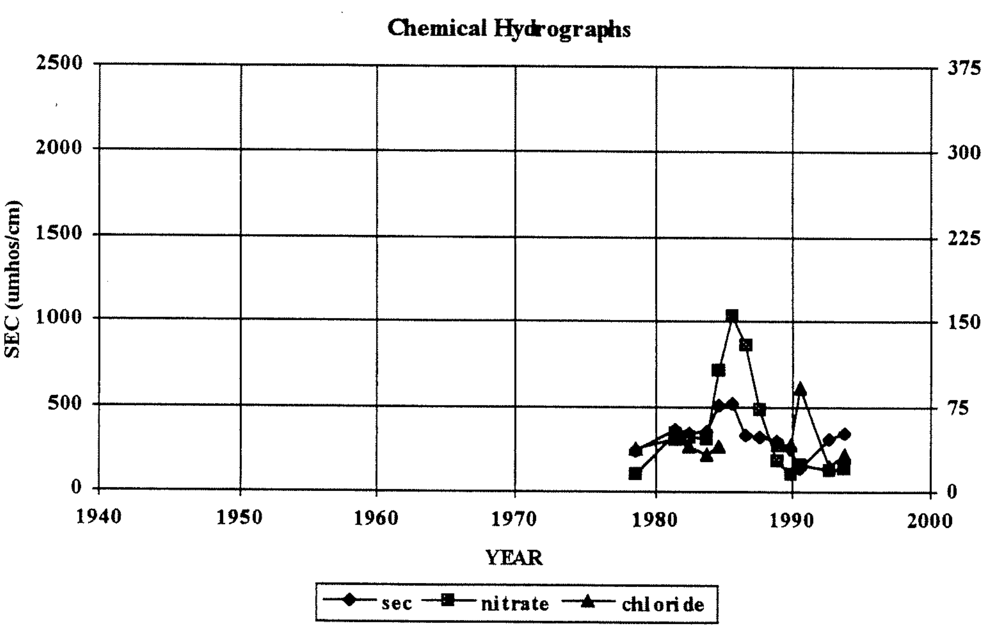
Ground Surface Elevation: 80

Perforation Rng Elevations: - No Data

Depth: 100

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-27L01

Area: PRUNEDALE

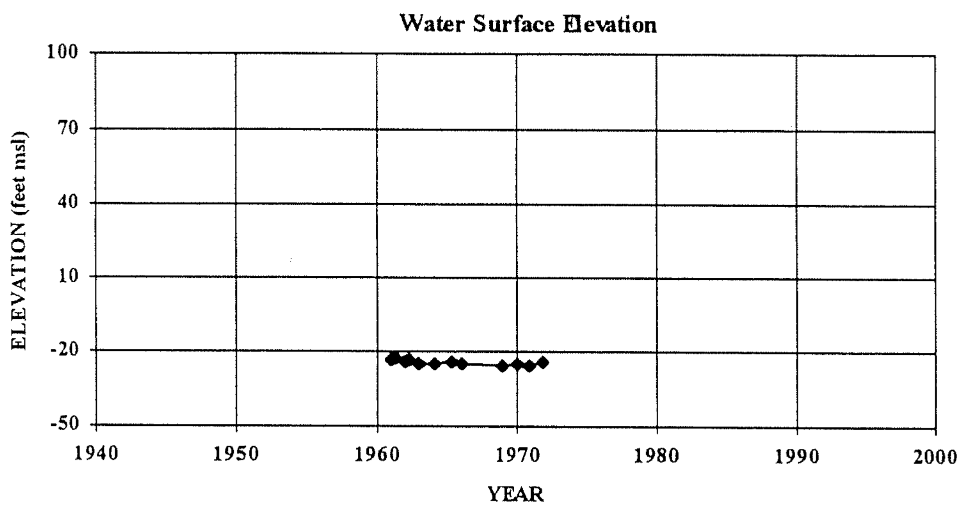
Use: DOMESTIC

Ground Surface Elevation: 85

Perforation Rng Elevations: -25 - -65

Depth: 150

Perforation Range: 110 - 150



North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-33H01

Area: PRUNEDALE

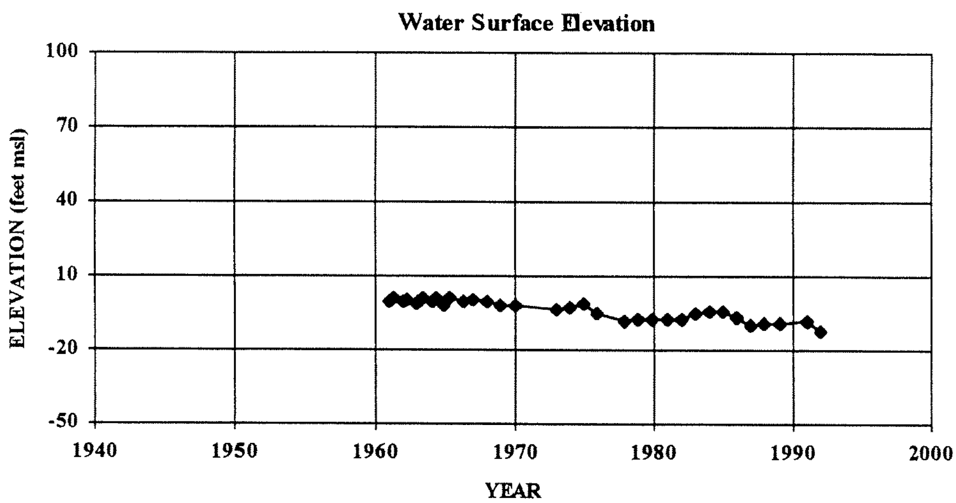
Use: IRRIGATION

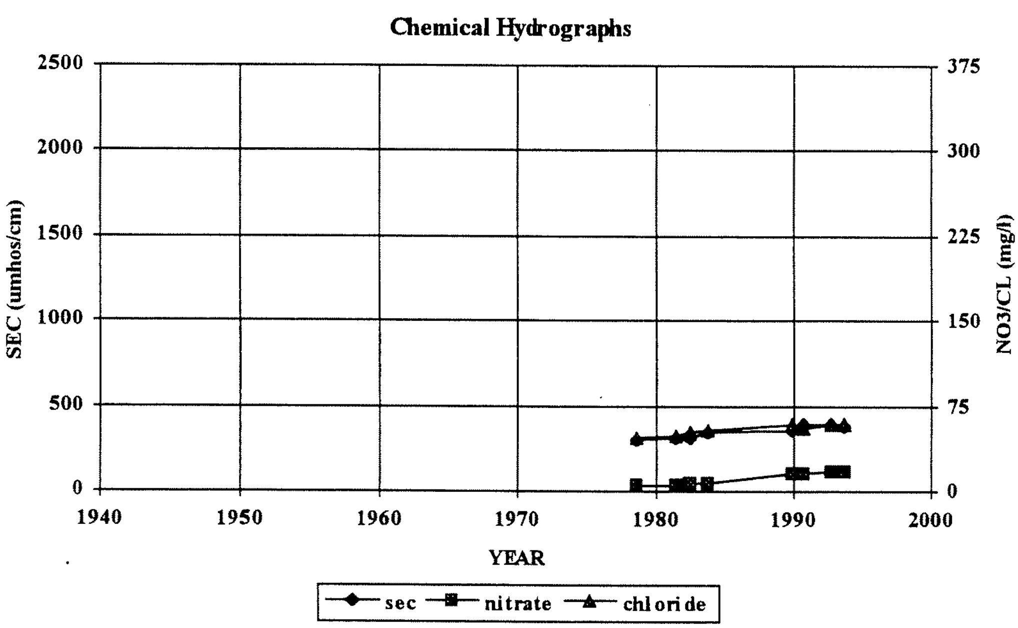
Ground Surface Elevation: 35

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/03E-19M01

Area: PRUNEDALE

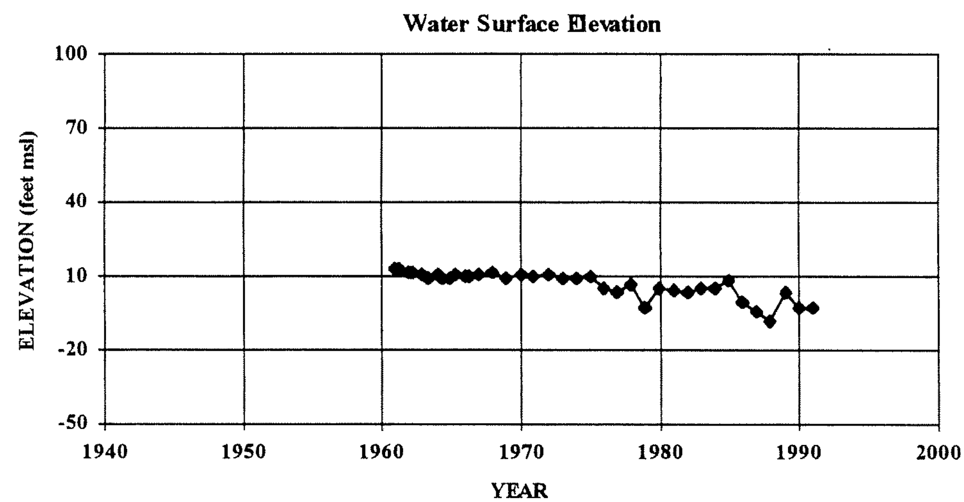
Use: IRRIGATION

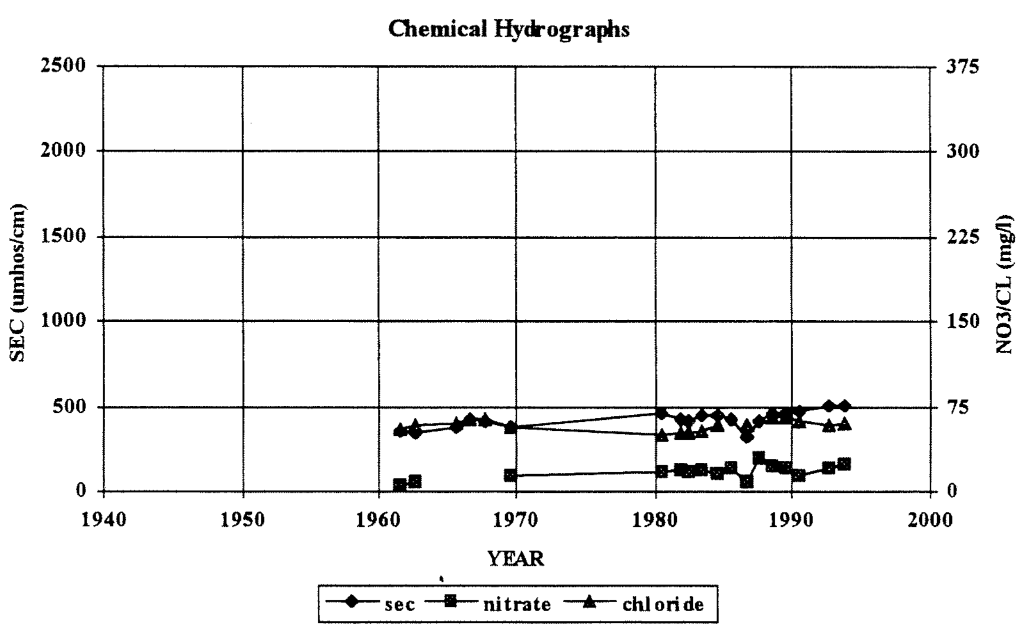
Ground Surface Elevation: 115

Perforation Rng Elevations: 15 - -46

Depth: 161

Perforation Range: 100 - 161





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/03E-29H01

Area: PRUNEDALE

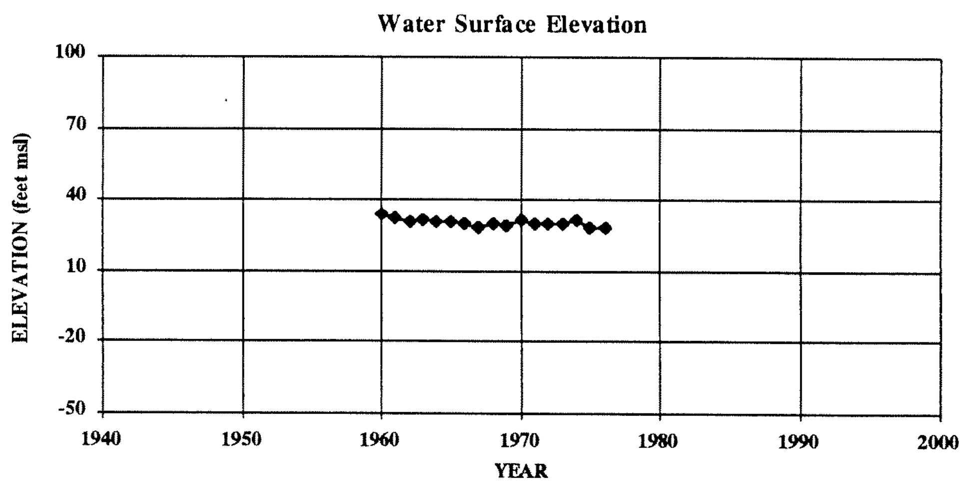
Use: IRRIGATION

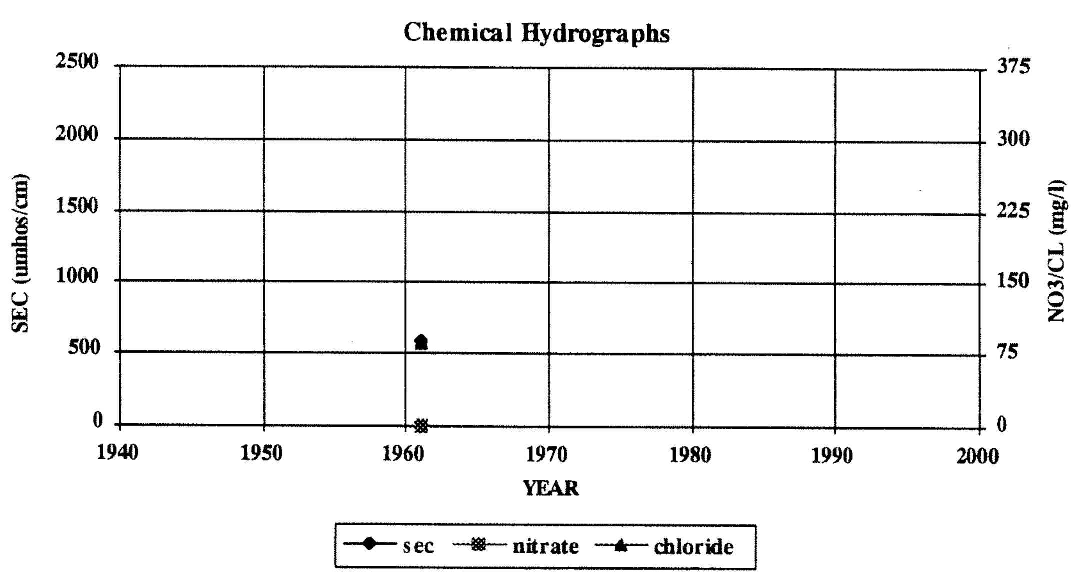
Ground Surface Elevation: 141

Perforation Rng Elevations 35 - 11

Depth: 169

Perforation Range: 106 - 130





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/03E-30A01

Area: PRUNEDALE

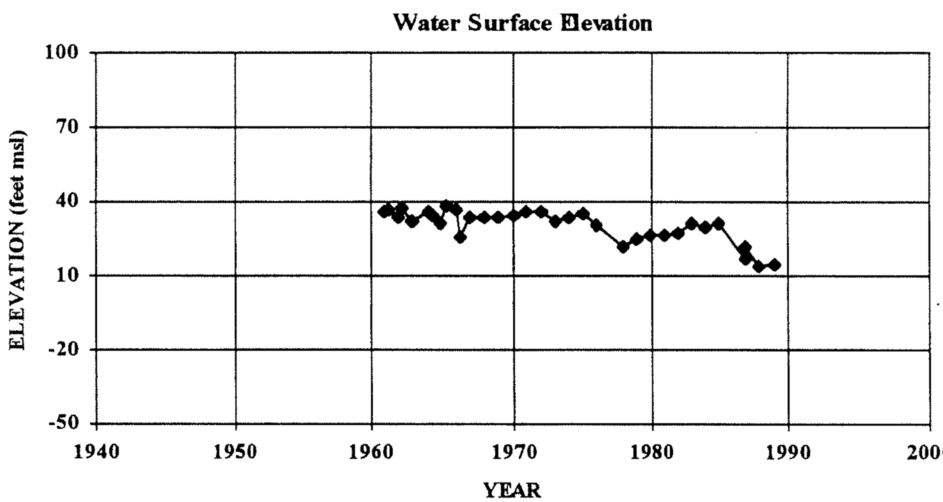
Use: IRRIGATION

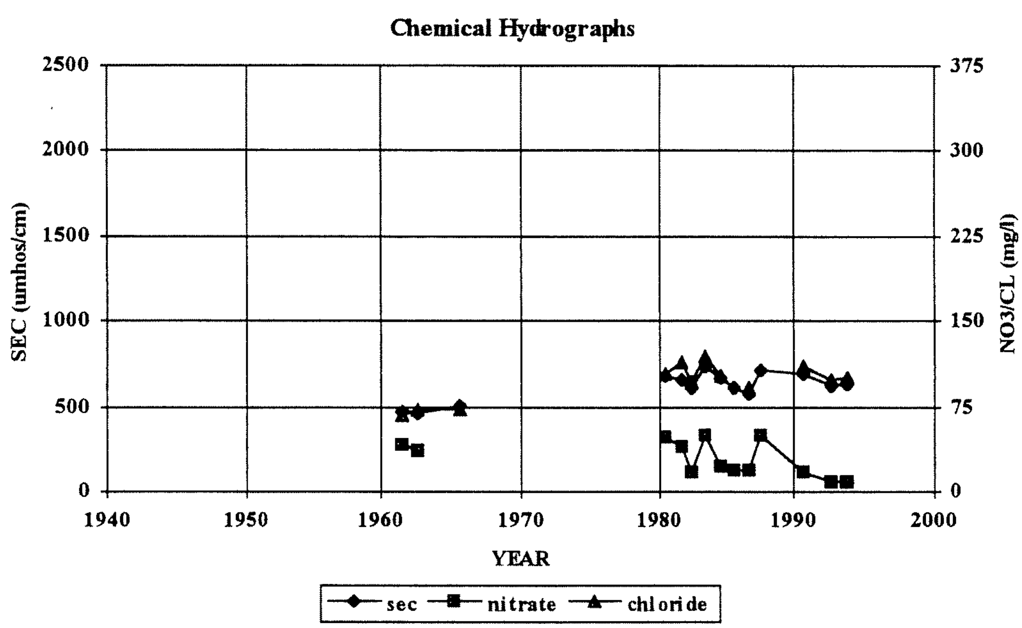
Ground Surface Elevation: 100

Perforation Rng Elevations: -41 - -125

Depth: 225

Perforation Range: 141 - 225





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/03E-31E01

Area: PRUNEDALE

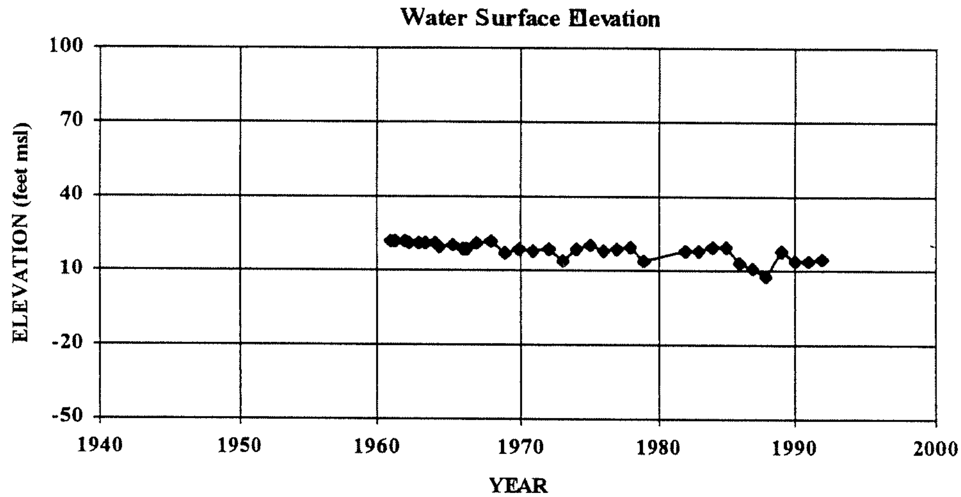
Use: DOMESTIC

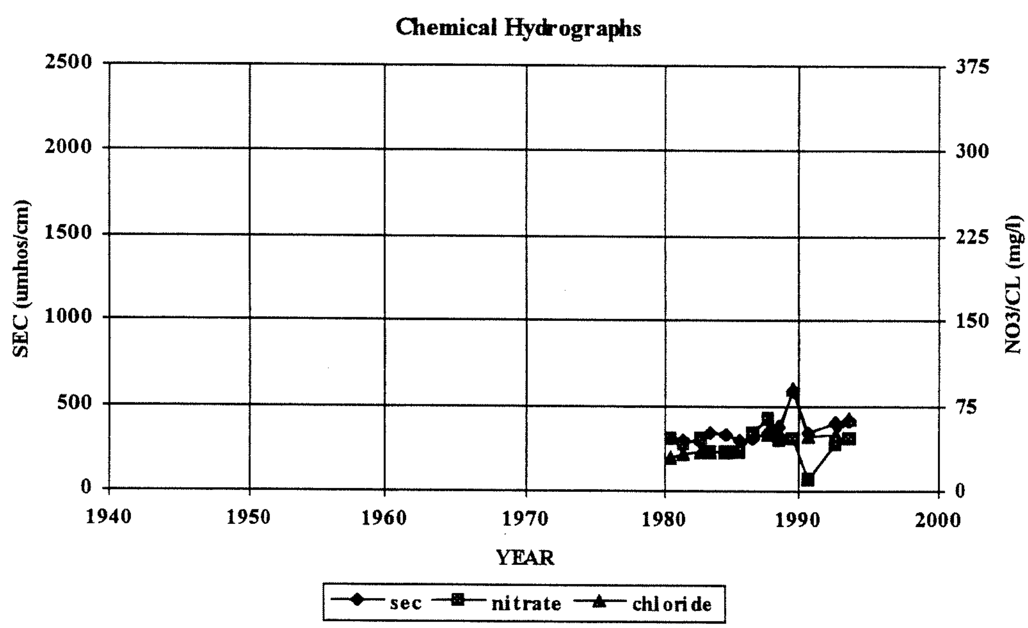
Ground Surface Elevation: 143

Perforation Rng Elevations: 51 - -5

Depth: 170

Perforation Range: 92 - 148





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/03E-31G01

Area: PRUNEDALE

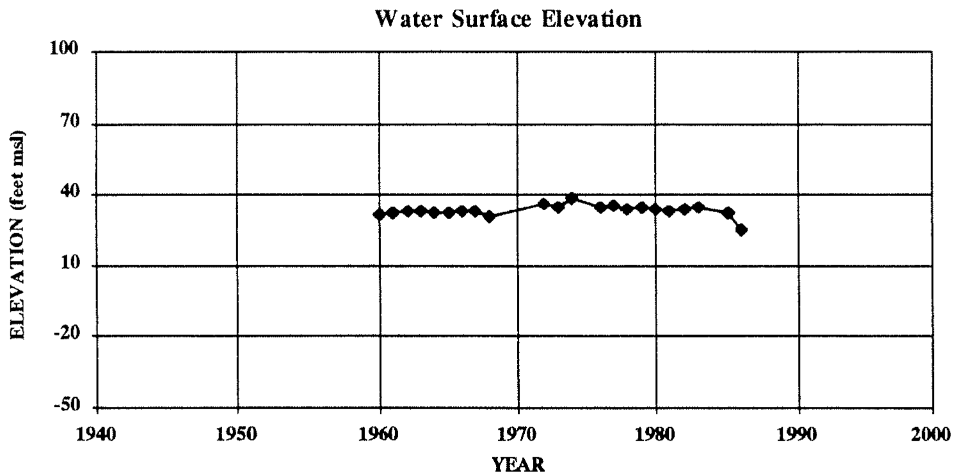
Use: DOMESTIC

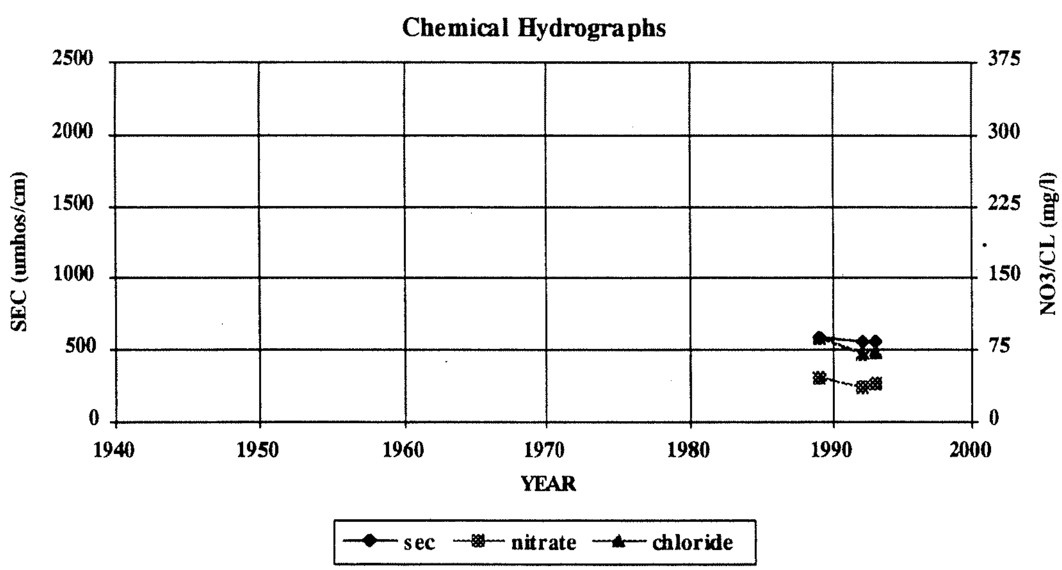
Ground Surface Elevation: 120

Perforation Rng Elevations -27 - -36

Depth: 156

Perforation Range: 147 - 156





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/03E-33H01

Area: PRUNEDALE

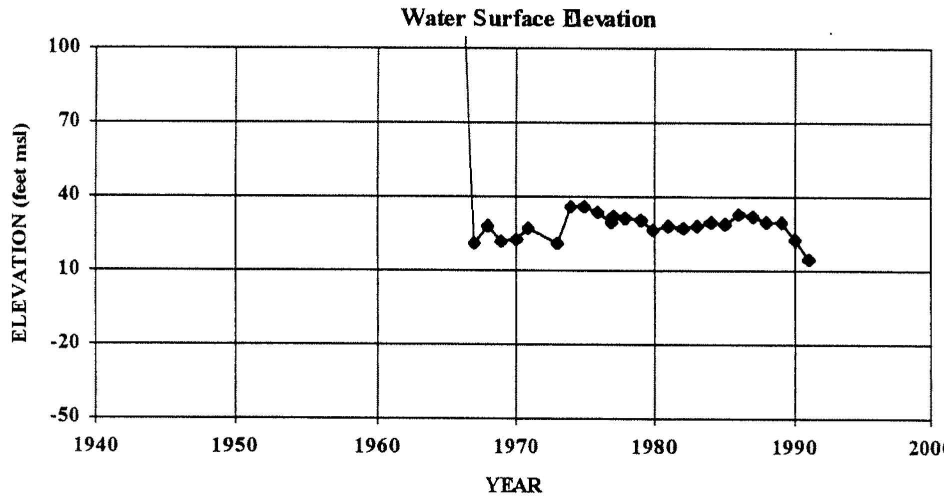
Use: DOMESTIC

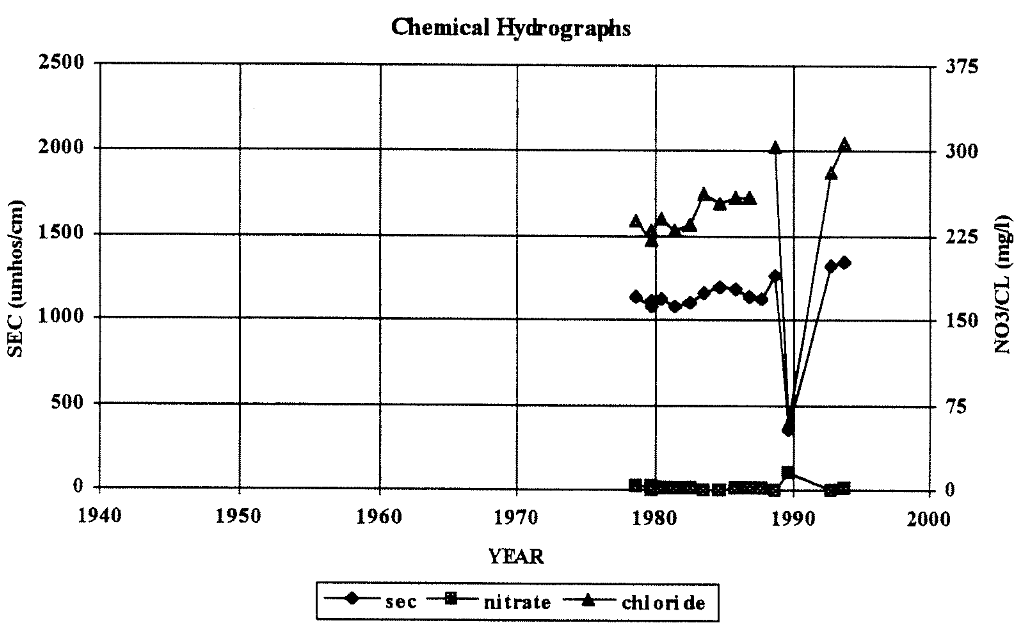
Ground Surface Elevation: No Data

Perforation Rng Elevations: -

Depth: 542

Perforation Range: 335 - 445





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-01K01

Area: PRUNEDALE

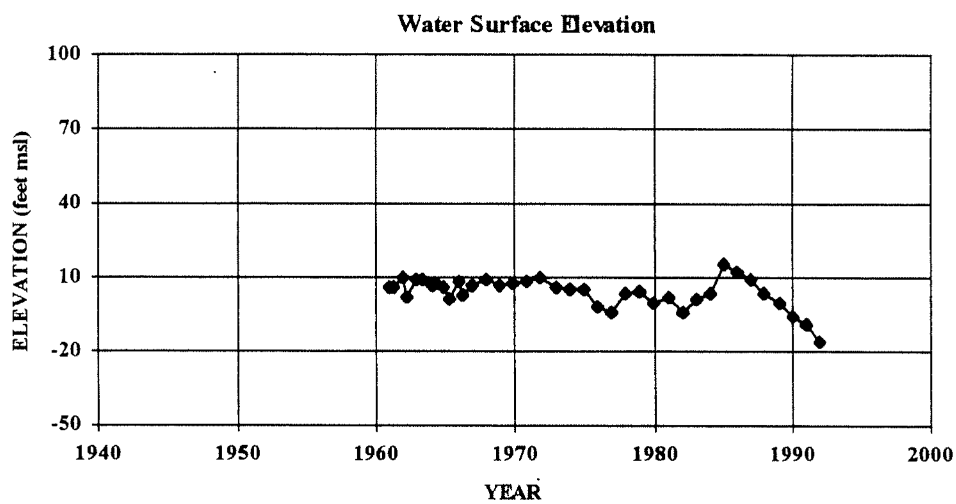
Use: IRRIGATION

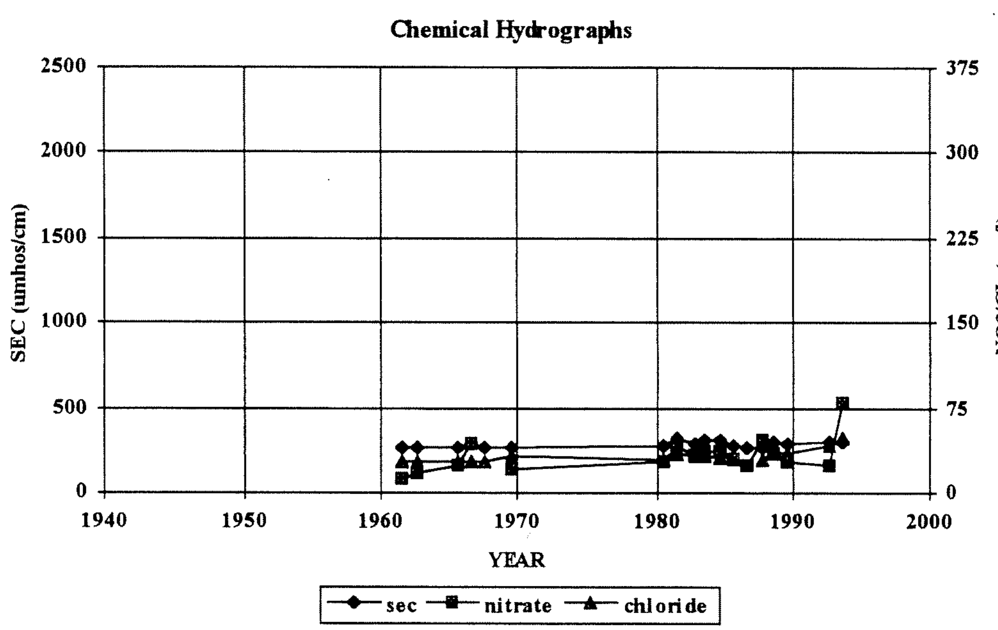
Ground Surface Elevation: 225

Perforation Rng Elevations: 1 - -39

Depth: 272

Perforation Range: 224 - 264





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-02C01

Area: PRUNEDALE

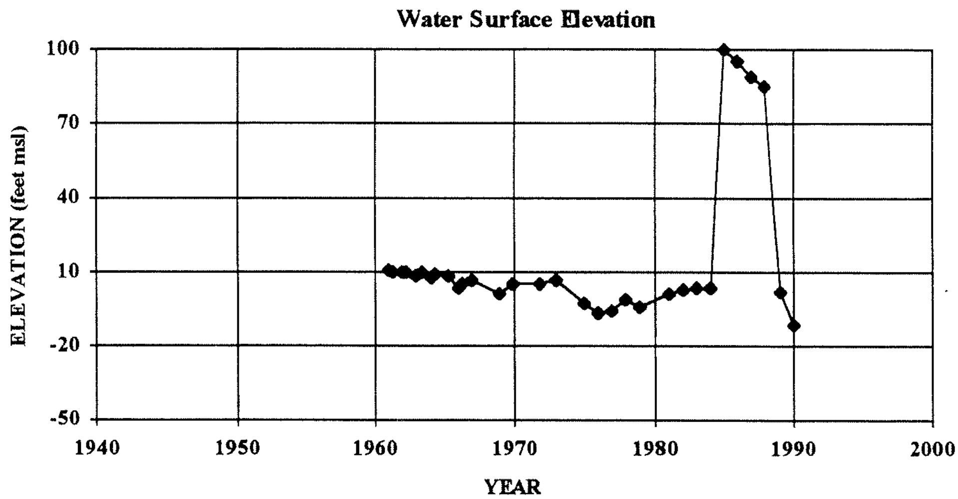
Use: DOMESTIC

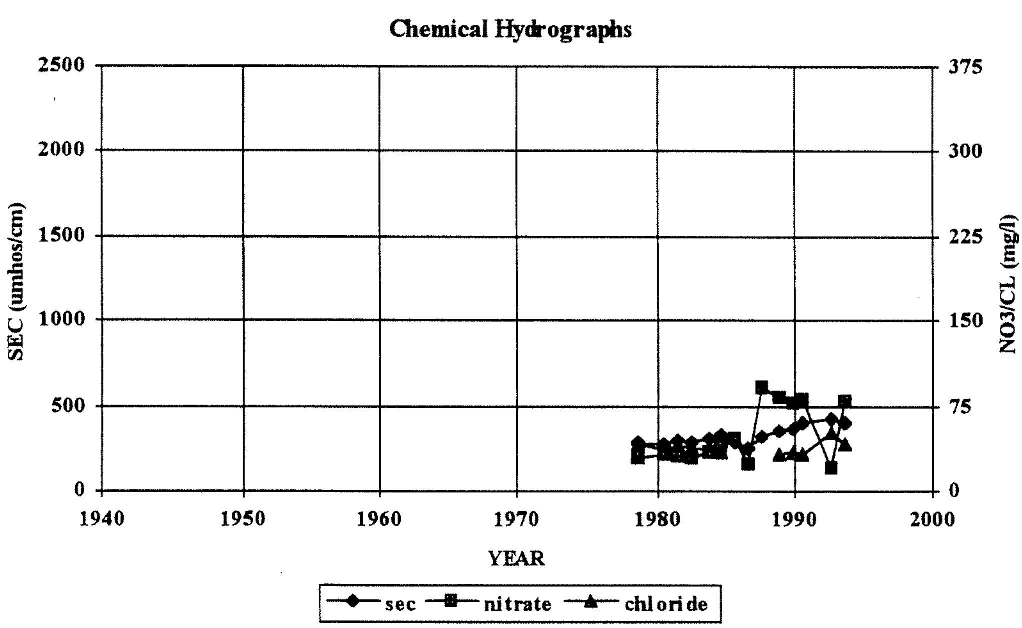
Ground Surface Elevation: 215

Perforation Rng Elevations: 3 - -29

Depth: 252

Perforation Range: 212 - 244





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-03Q01

Area: PRUNEDALE

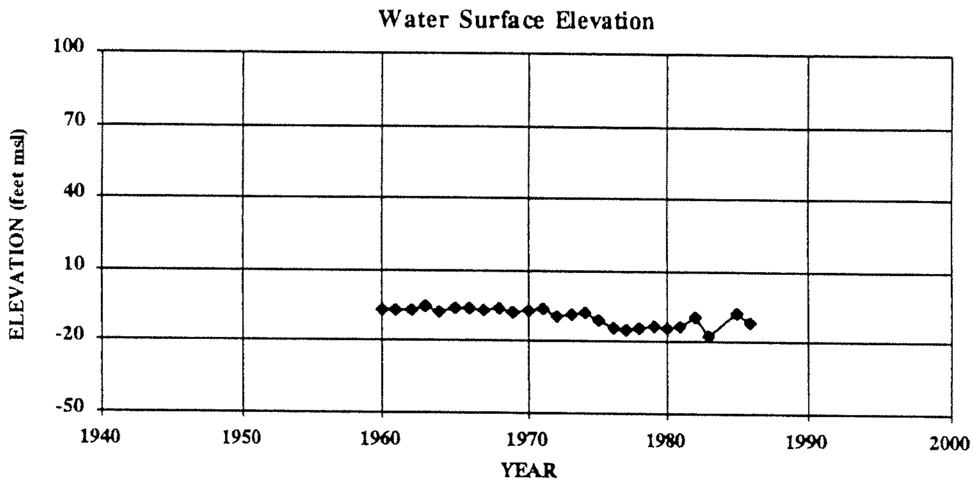
Use: IRRIGATION

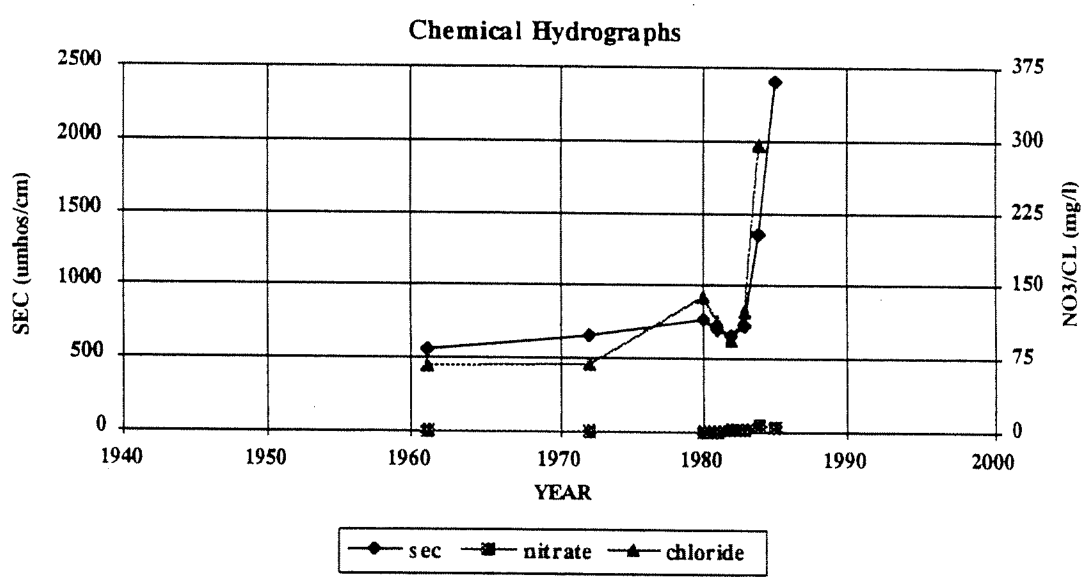
Ground Surface Elevation: 12

Perforation Rng Elevations -84 - -180

Depth: 192

Perforation Range: 96 - 192





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-10J01

Area: PRUNEDALE

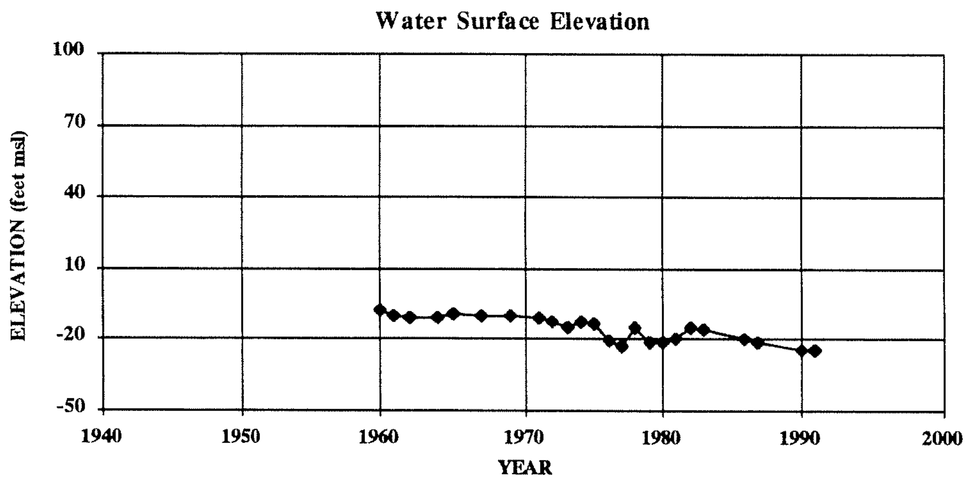
Use: IRRIGATION

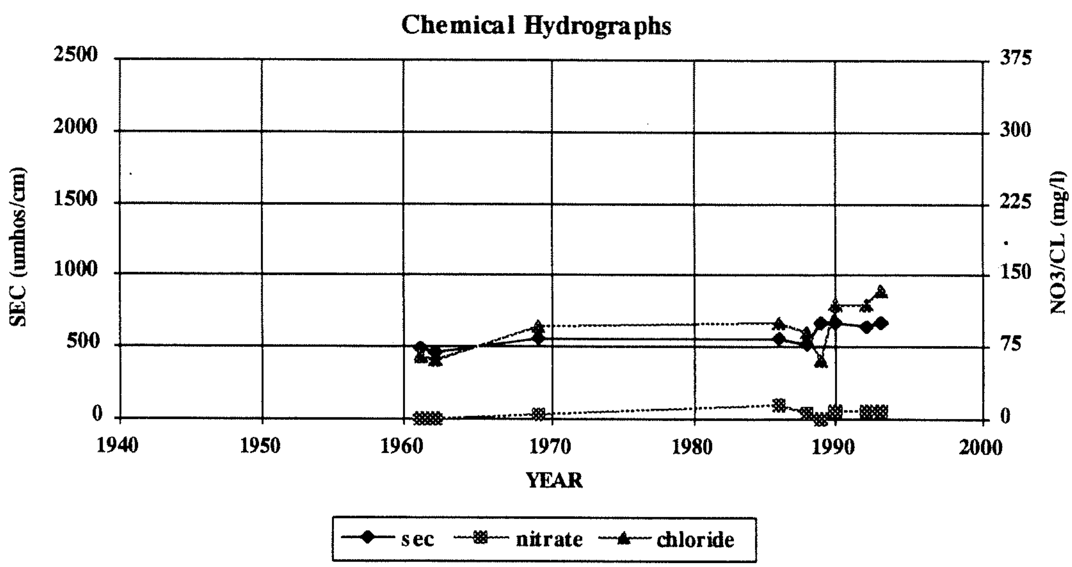
Ground Surface Elevation: 100

Perforation Rng Elevations -68 - -524

Depth: 624

Perforation Range: 168 - 624





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-12D01

Area: PRUNEDALE

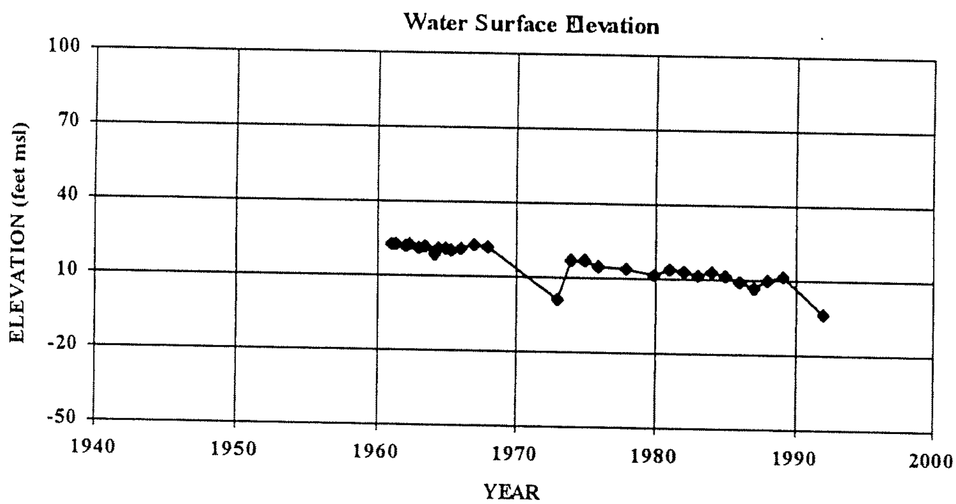
Use: IRRIGATION

Ground Surface Elevation: 190

Perforation Rng Elevations: -26 - -206

Depth: 396

Perforation Range: 216 - 396



North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-12K01

Area: PRUNEDALE

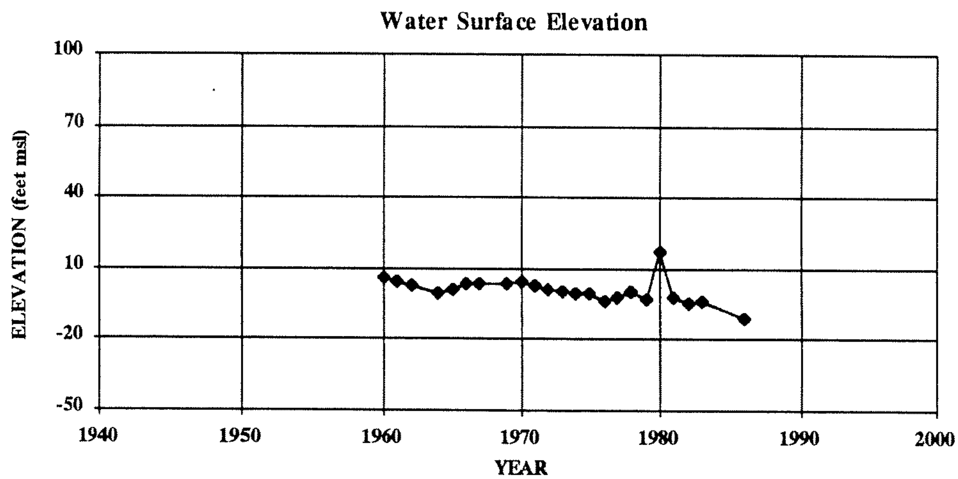
Use: DOMESTIC

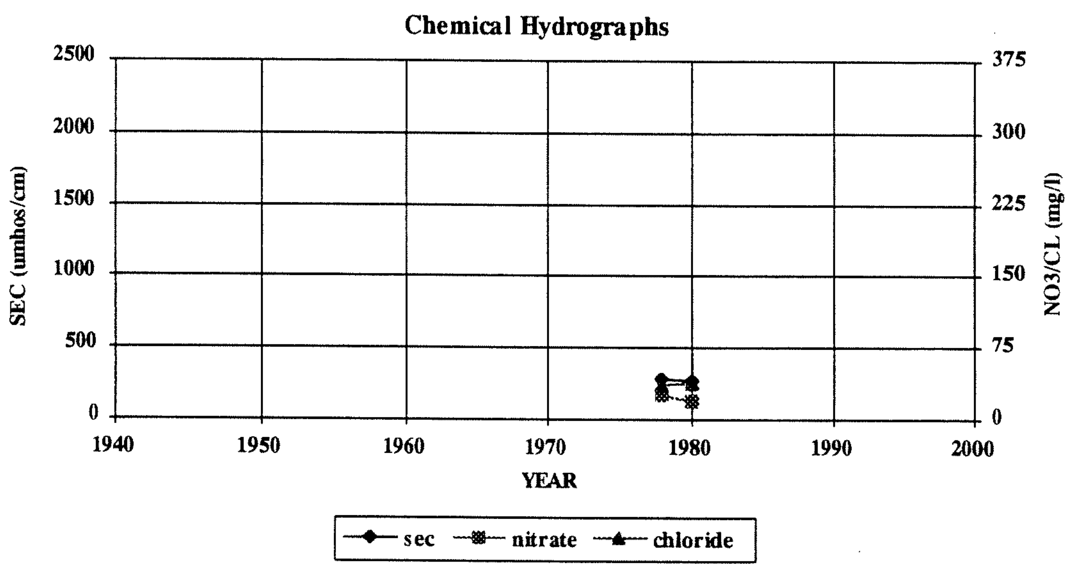
Ground Surface Elevation: 180

Perforation Rng Elevations 11 - -21

Depth: 205

Perforation Range: 169 - 201





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-13N01

Area: PRUNEDALE

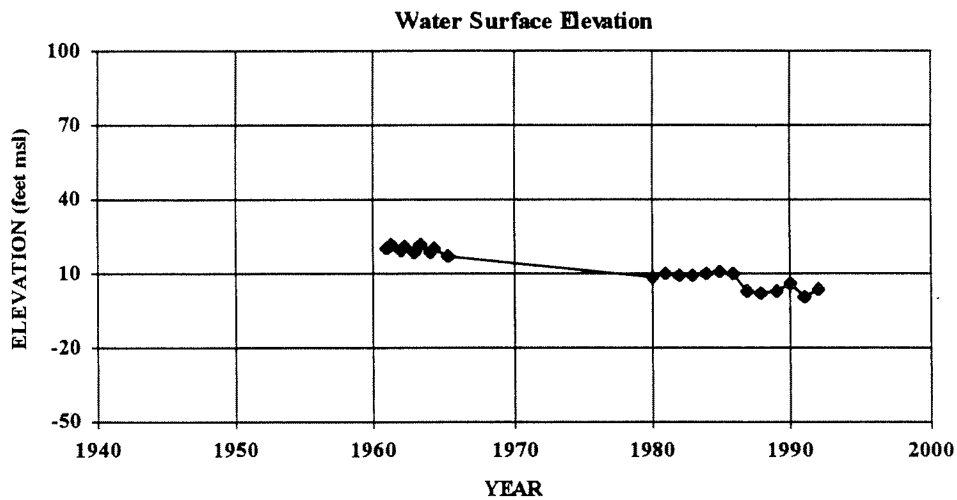
Use: IRRIGATION

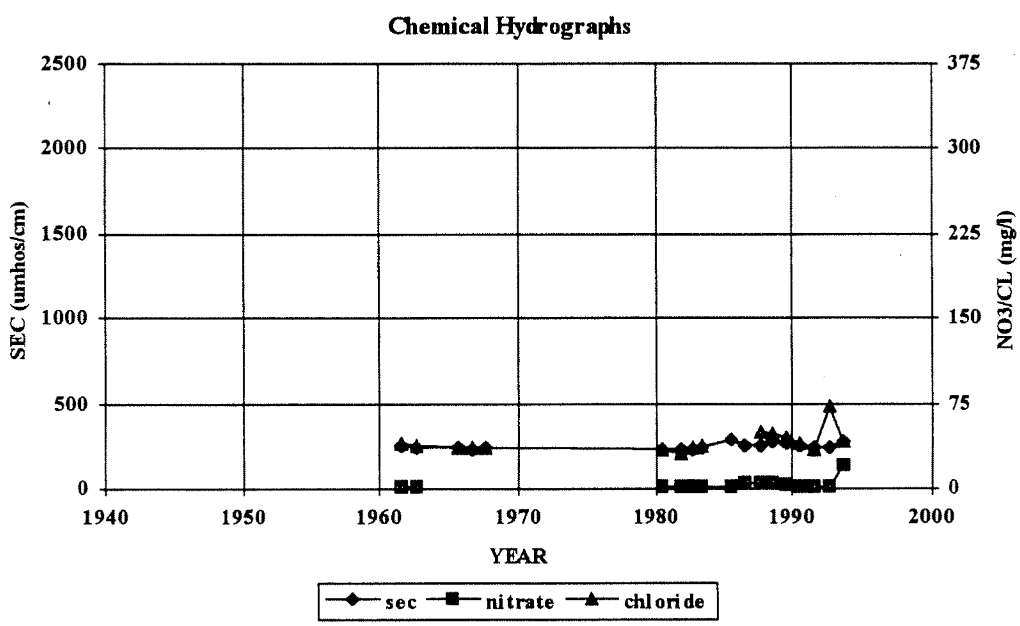
Ground Surface Elevation: 78

Perforation Rng Elevations: -54 - -114

Depth: 200

Perforation Range: 132 - 192





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-14C01

Area: PRUNEDALE

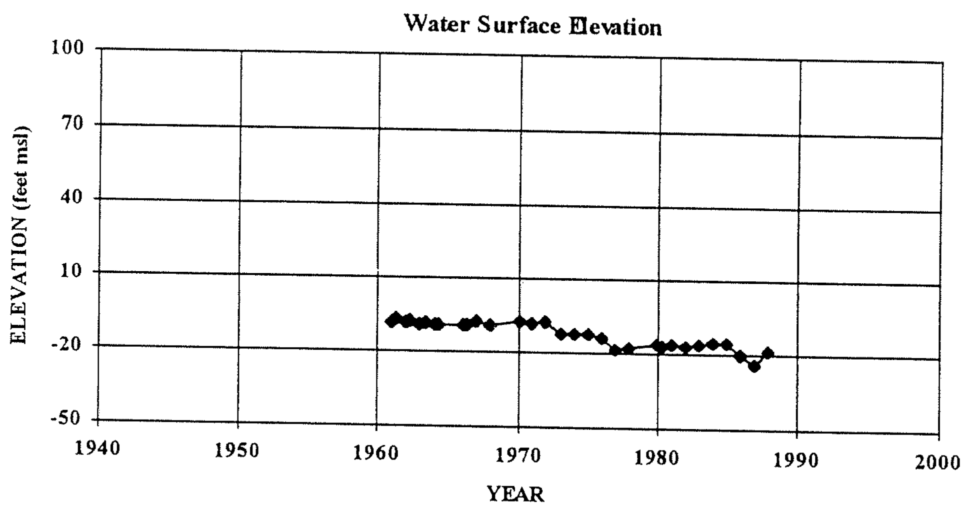
Use: IRRIGATION

Ground Surface Elevation: 160

Perforation Rng Elevations: -16 - -76

Depth: 244

Perforation Range: 176 - 236



North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-26L01

Area: PRUNEDALE

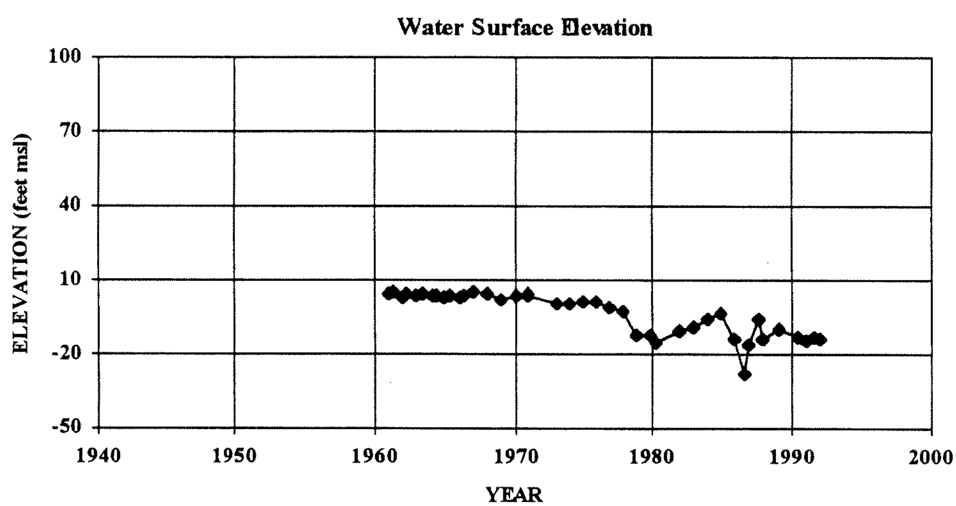
Use: IRRIGATION

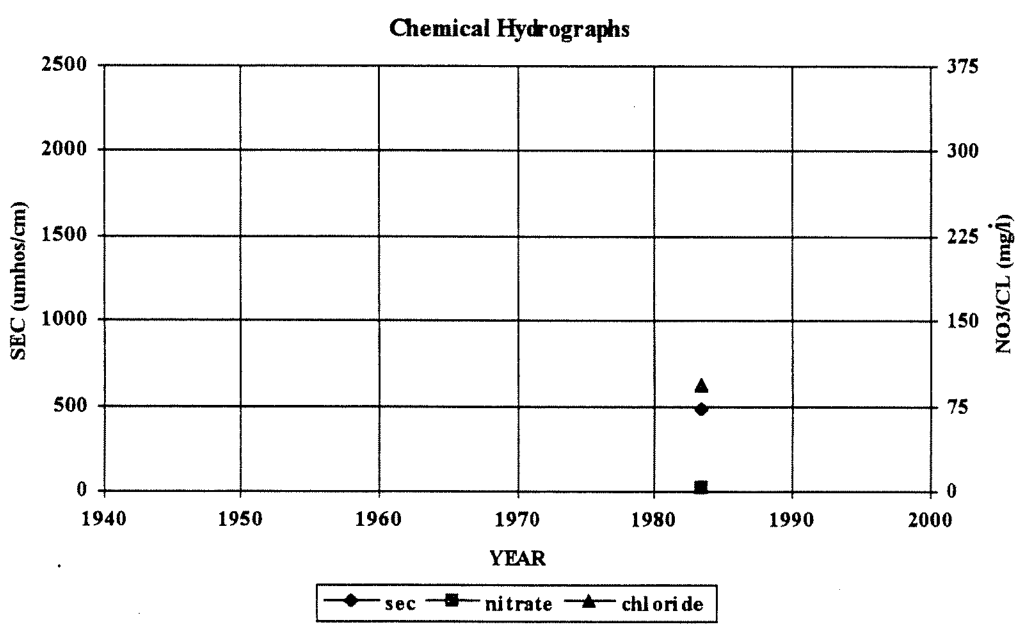
Ground Surface Elevation: 110

Perforation Rng Elevations: - No Data

Depth: 250

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-04L01

Area: PRUNEDALE

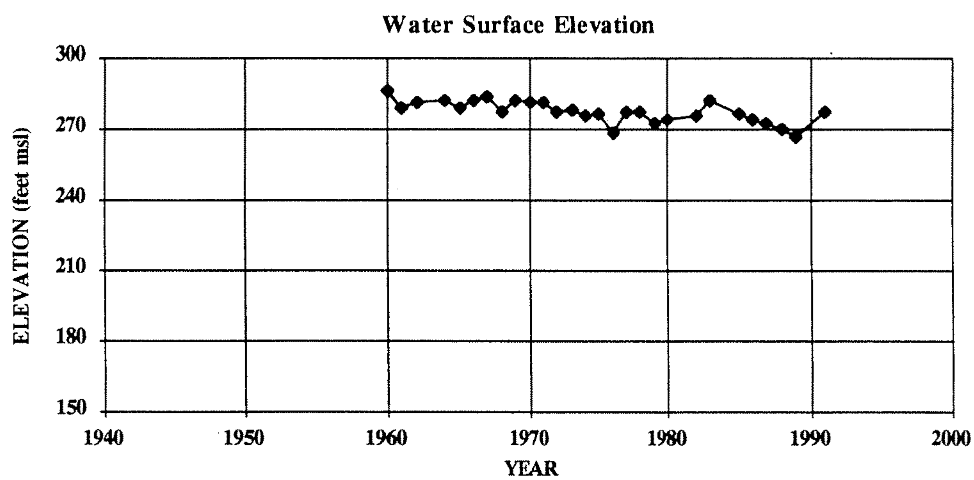
Use: DOMESTIC

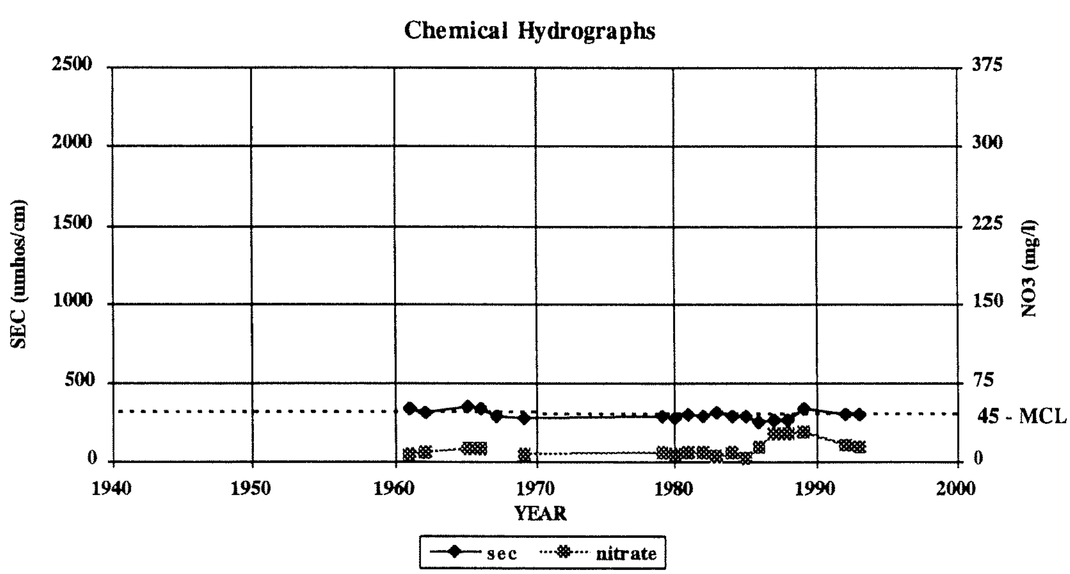
Ground Surface Elevation: 492

Perforation Rng Elevations 280 - 240

Depth: 260

Perforation Range: 212 - 252





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-08D01

Area: PRUNEDALE

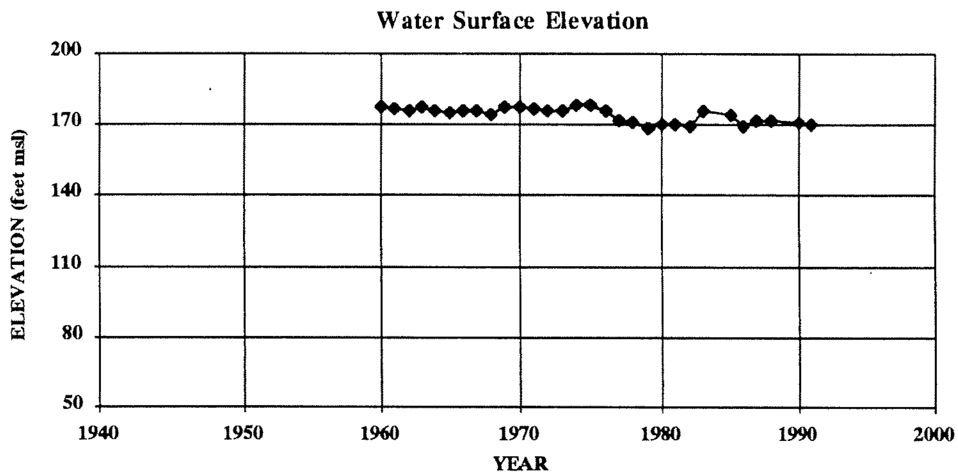
Use: DOMESTIC

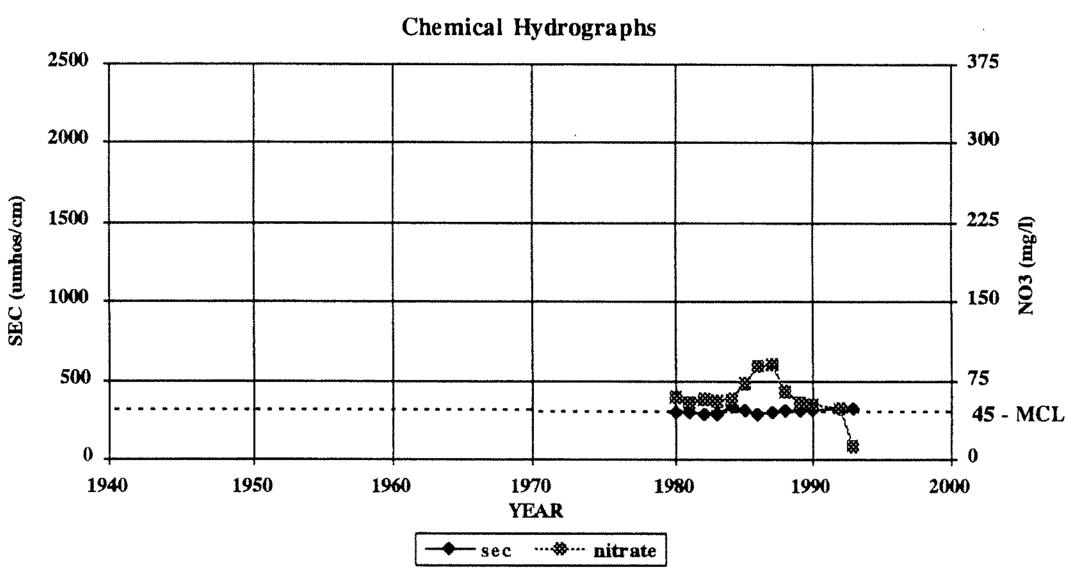
Ground Surface Elevation: 260

Perforation Rng Elevations 170 - 138

Depth: 130

Perforation Range: 90 - 122





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-10N01

Area: PRUNEDALE

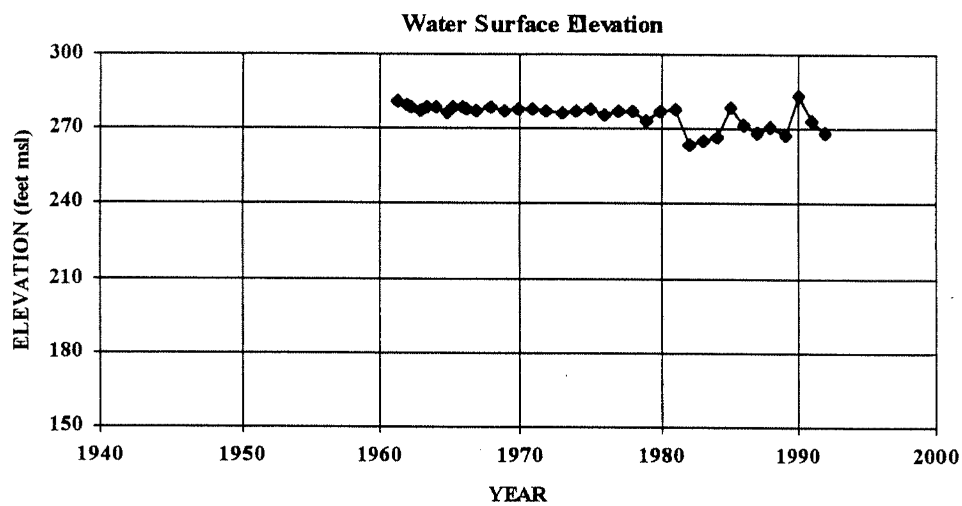
Use: DOMESTIC

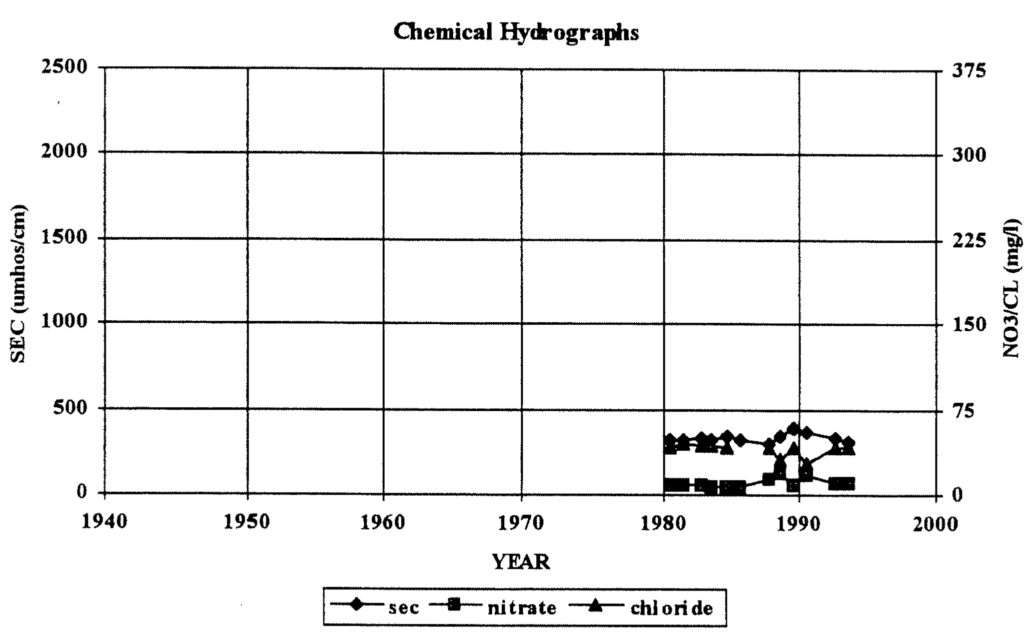
Ground Surface Elevation: 383

Perforation Rng Elevations: - No Data

Depth: 145

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-10Q01

Area: PRUNEDALE

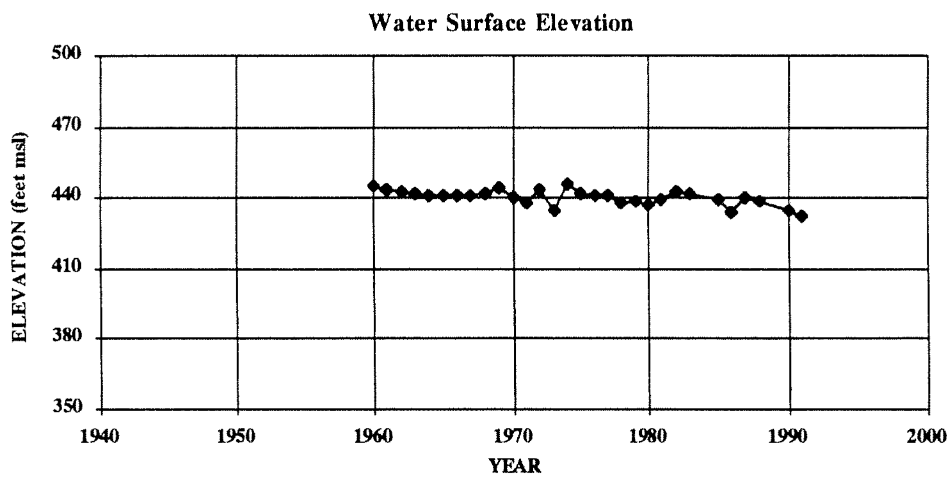
Use: DOMESTIC

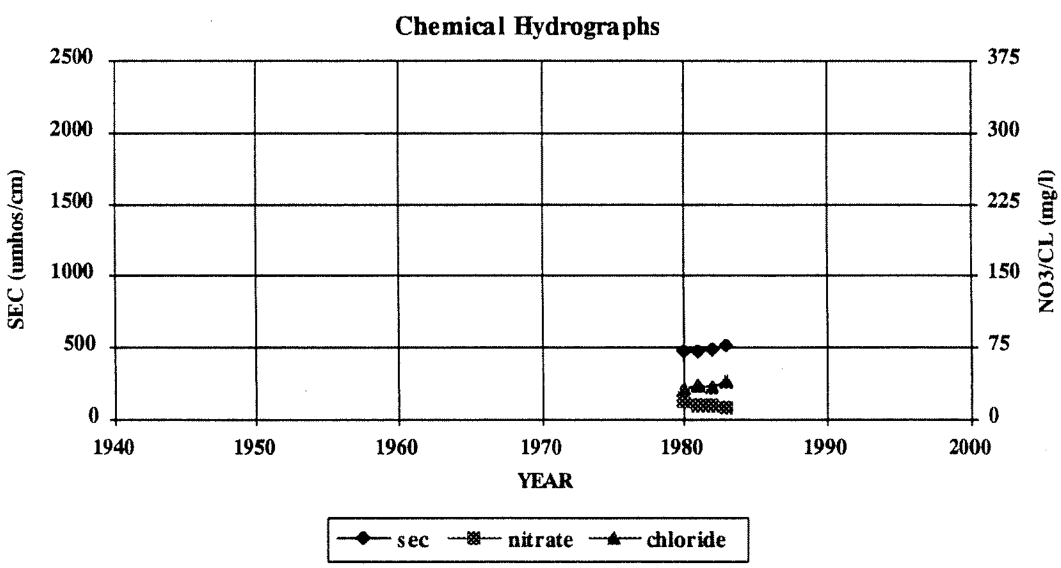
Ground Surface Elevation: 495

Perforation Rng Elevations 434 - 419

Depth: 76

Perforation Range: 61 - 76





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-16C03

Area: PRUNEDALE

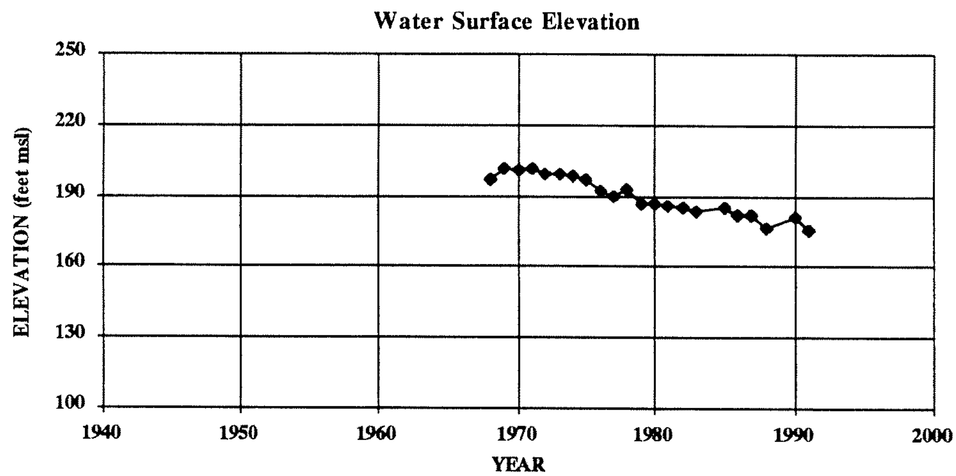
Use: DOMESTIC

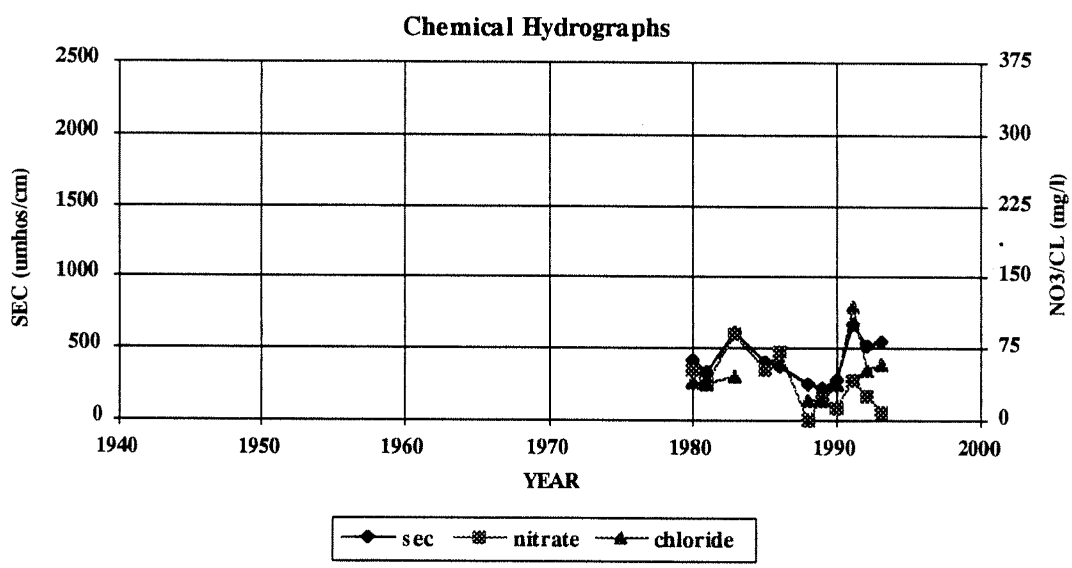
Ground Surface Elevation: 220.5

Perforation Rng Elevations 184.5 - 144.5

Depth: 84

Perforation Range: 36 - 76





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-16J01

Area: PRUNEDALE

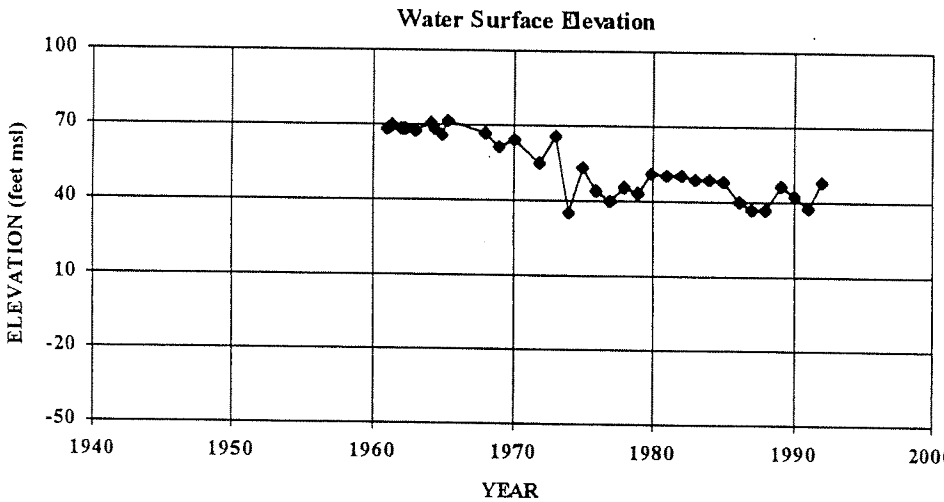
Use: DOMESTIC

Ground Surface Elevation: 270

Perforation Rng Elevations: 166 - 26

Depth: 252

Perforation Range: 104 - 244



North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-17B01

Area: PRUNEDALE

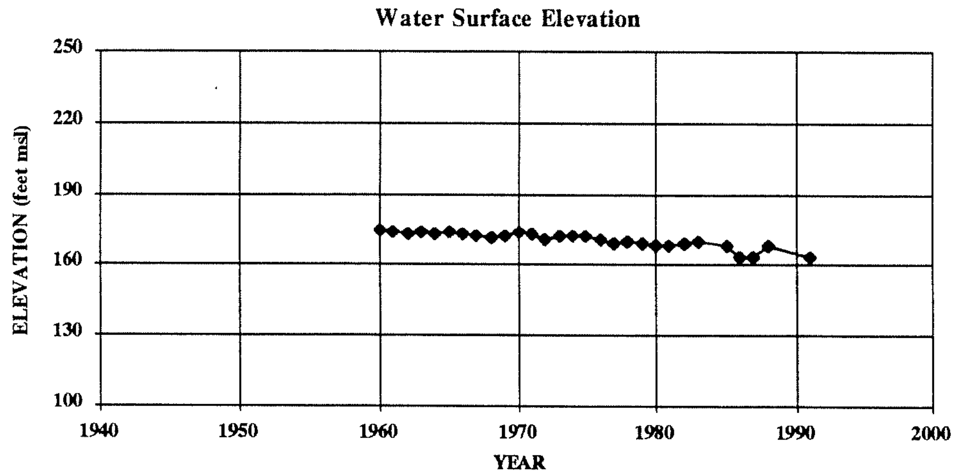
Use: DOMESTIC

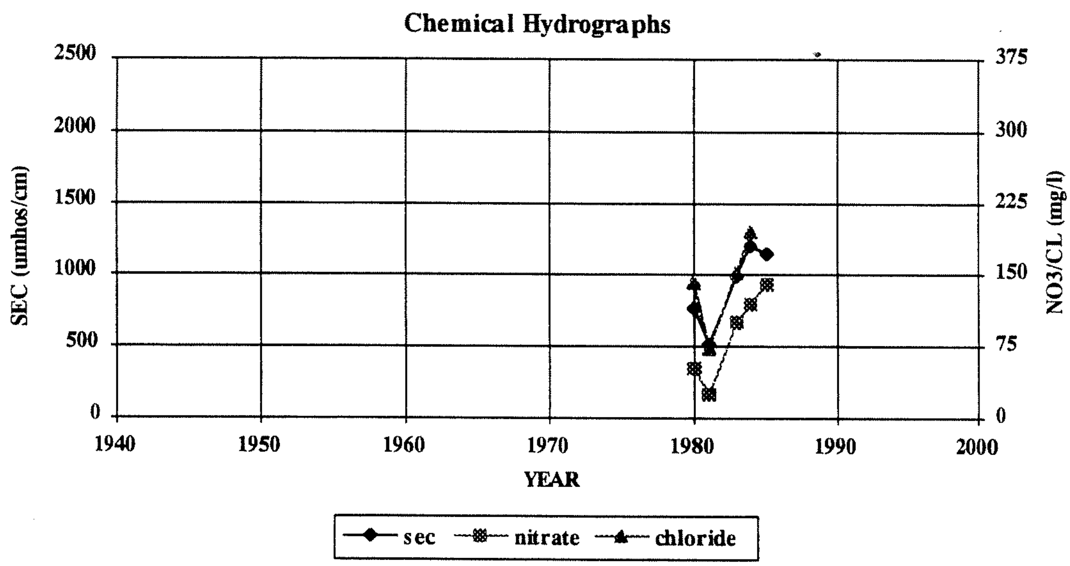
Ground Surface Elevation: 208

Perforation Rng Elevations 169 - 138

Depth: 78

Perforation Range: 39 - 70





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-17F02

Area: PRUNEDALE

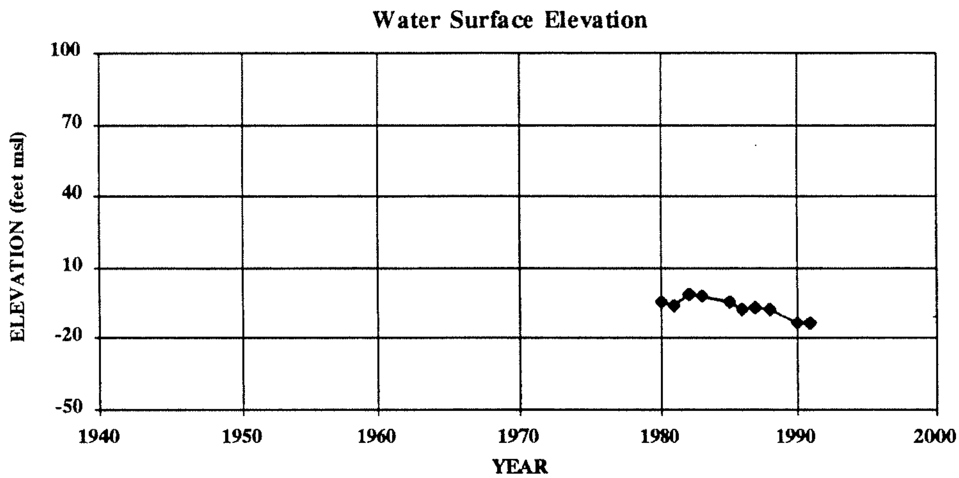
Use: DOMESTIC

Ground Surface Elevation: 220.5

Perforation Rng Elevations -23.5 - -63.5

Depth: 392

Perforation Range: 244 - 284



North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-19H01

Area: PRUNEDALE

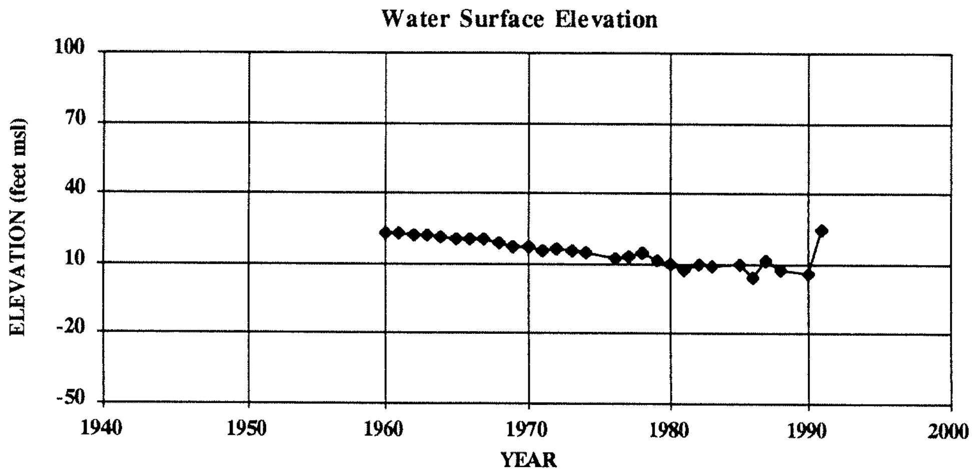
Use: DOMESTIC

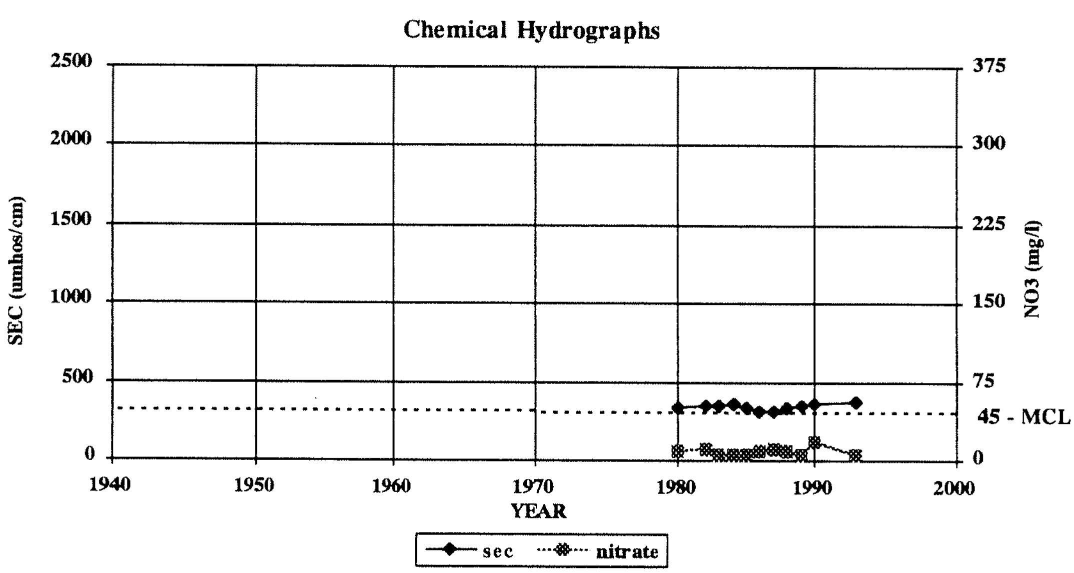
Ground Surface Elevation: 140

Perforation Rng Elevations 8 - -48

Depth: 192

Perforation Range: 132 - 188





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-19Q01

Area: PRUNEDALE

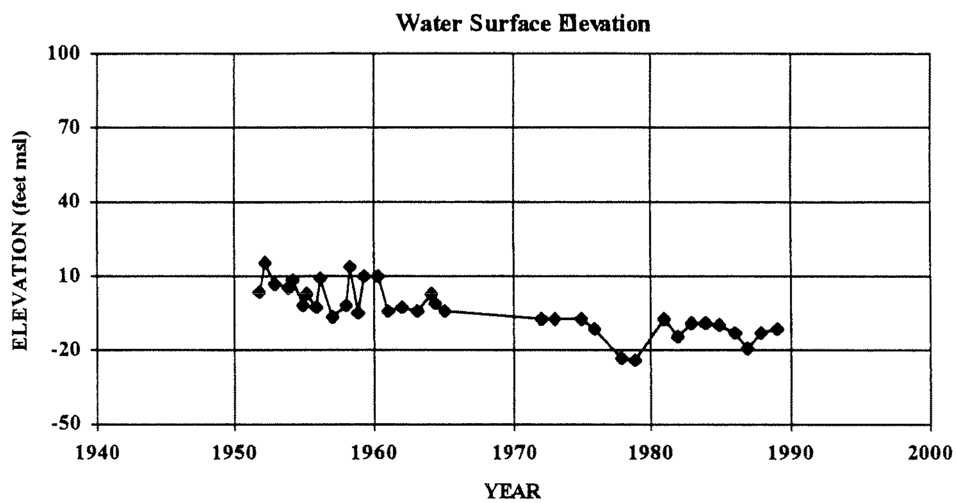
Use: IRRIGATION

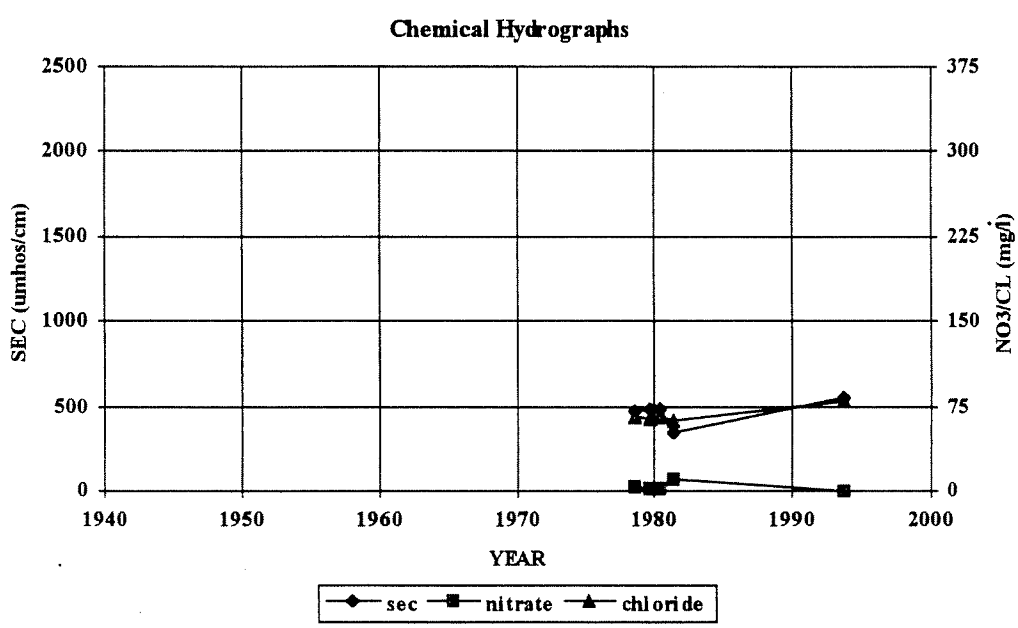
Ground Surface Elevation: 179

Perforation Rng Elevations: - No Data

Depth: 703

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-20B01

Area: PRUNEDALE

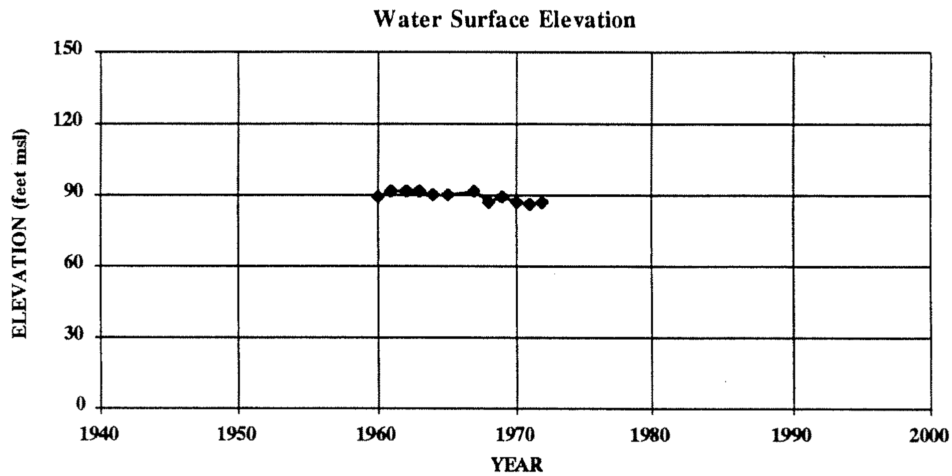
Use: DOMESTIC

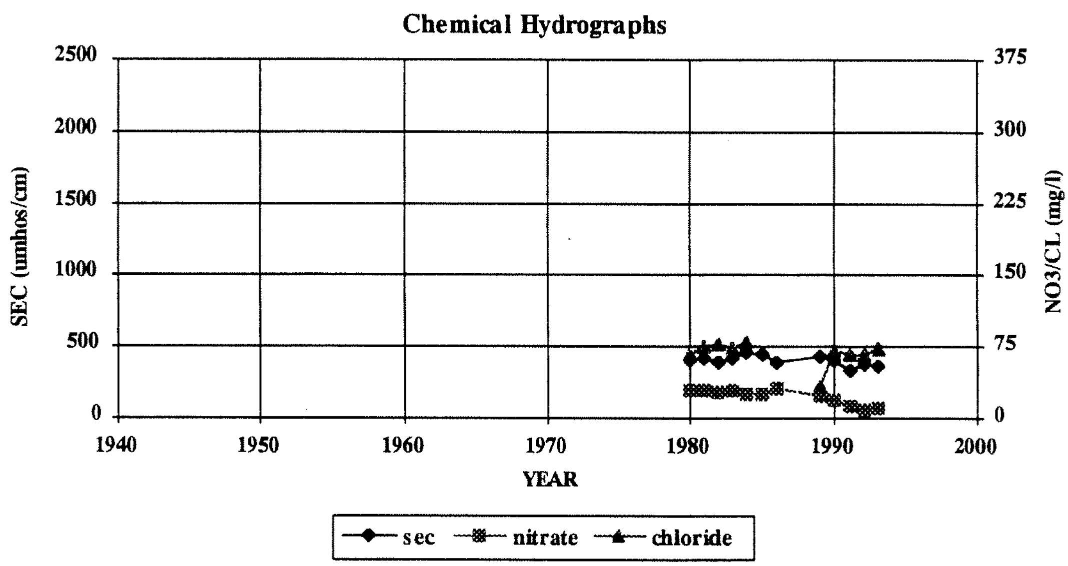
Ground Surface Elevation: 195

Perforation Rng Elevations 95 - 43

Depth: 160

Perforation Range: 100 - 152





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-20B02

Area: PRUNEDALE

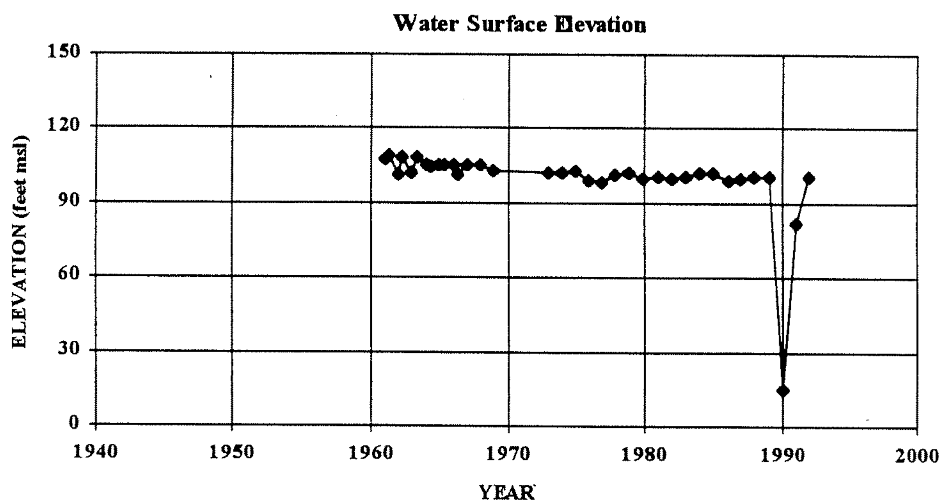
Use: IRRIGATION

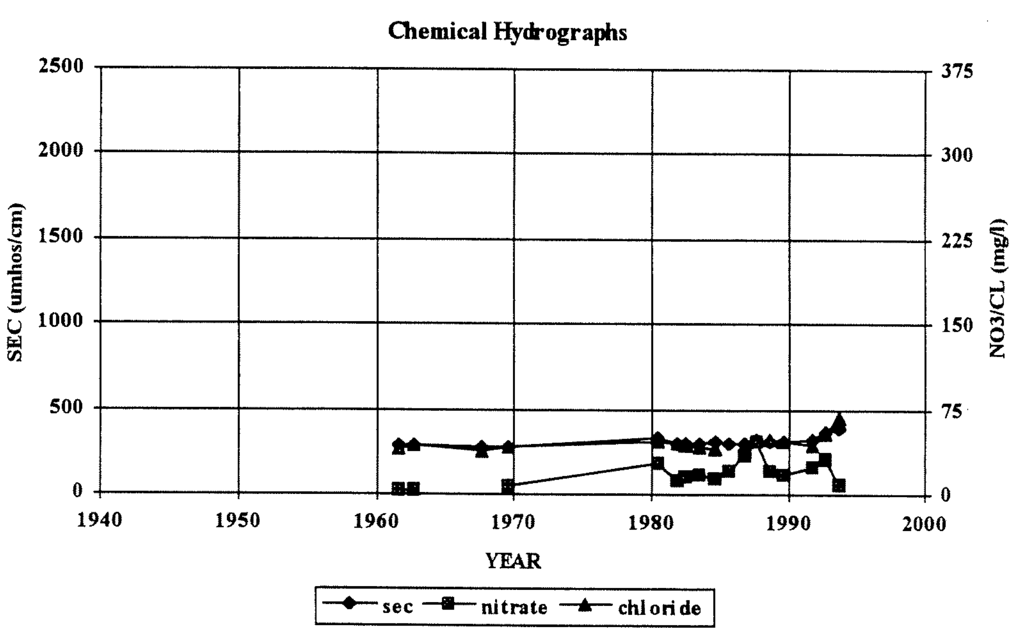
Ground Surface Elevation: 200

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-20P01

Area: PRUNEDALE

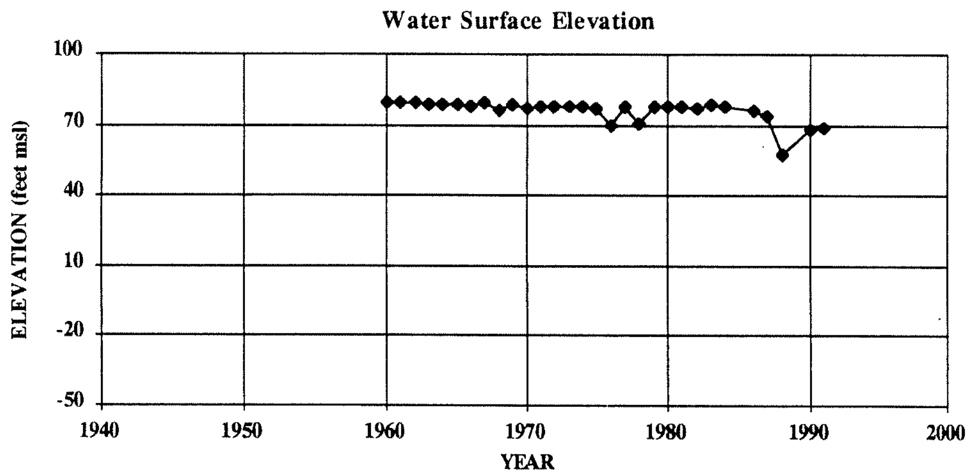
Use: IRRIGATION

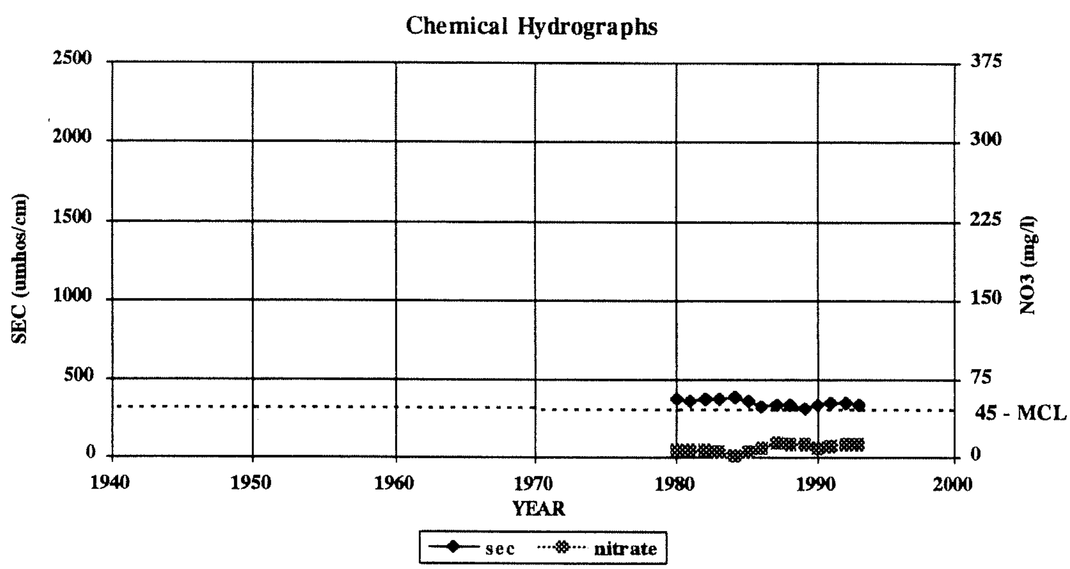
Ground Surface Elevation: 223

Perforation Rng Elevations 75 - 59

Depth: 192

Perforation Range: 148 - 164





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-27D01

Area: PRUNEDALE

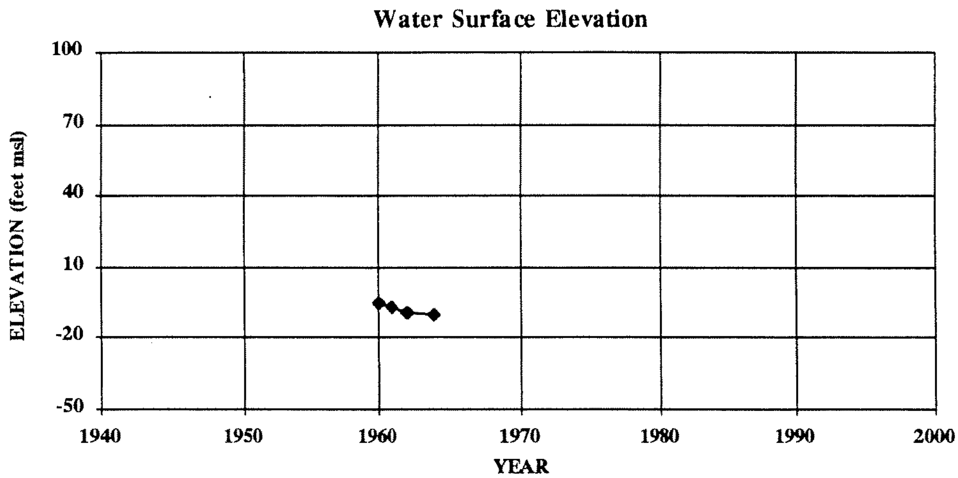
Use: DOMESTIC

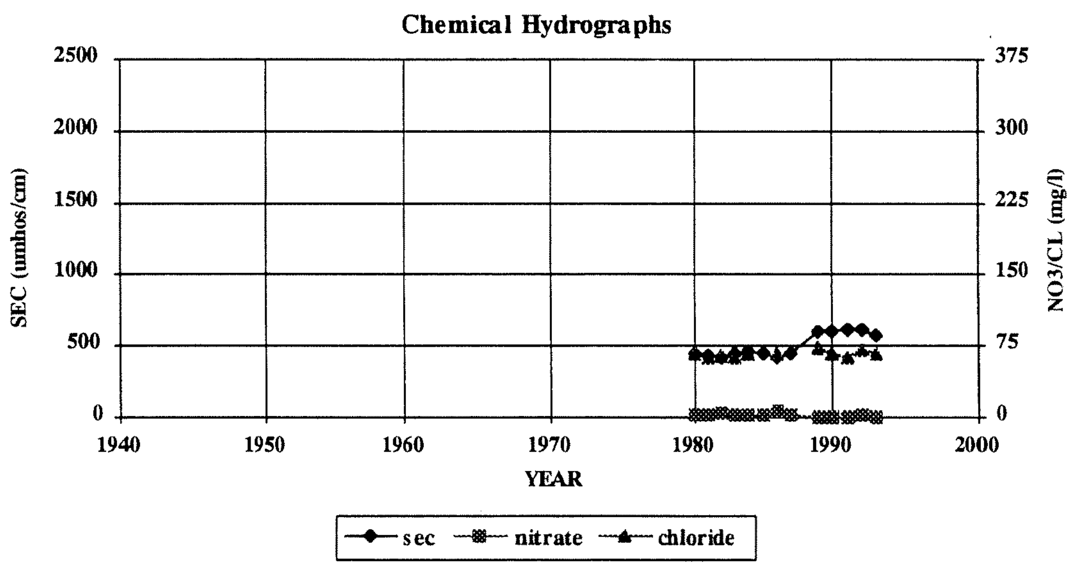
Ground Surface Elevation: 218

Perforation Rng Elevations -18 - -50

Depth: 276

Perforation Range: 236 - 268





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-29A01

Area: PRUNEDALE

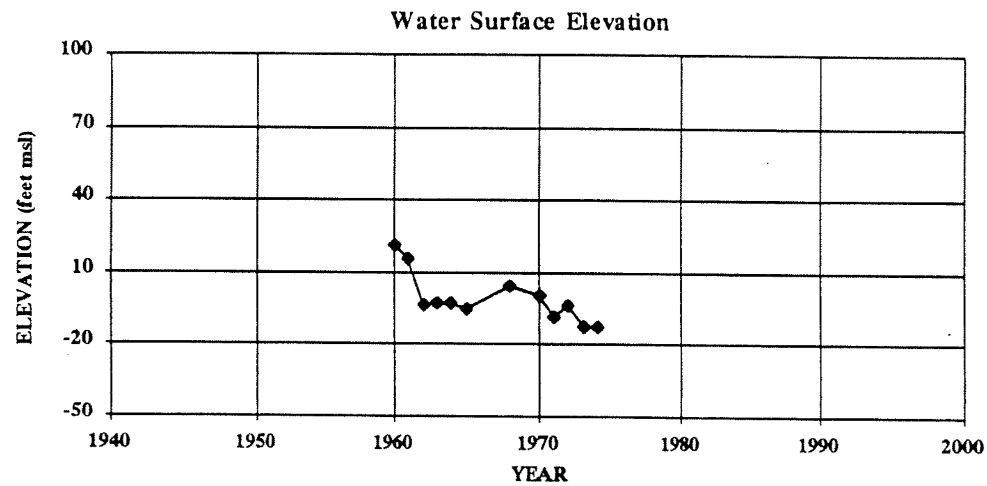
Use: DOMESTIC

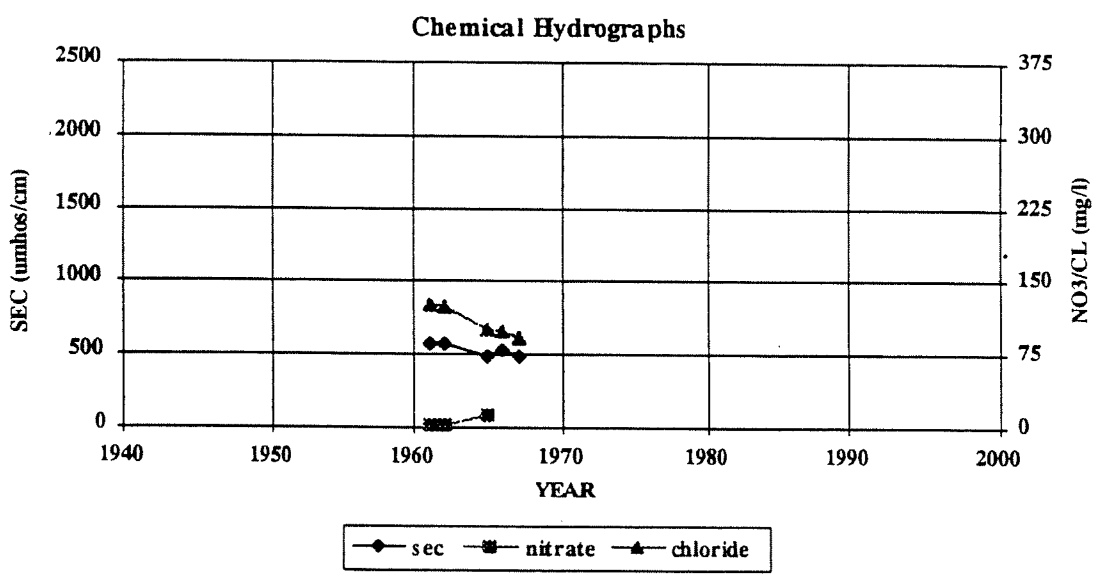
Ground Surface Elevation: 70

Perforation Rng Elevations 30 - -122

Depth: 200

Perforation Range: 40 - 192





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-10D01

Area: PAJARO-SPRINGFIELD

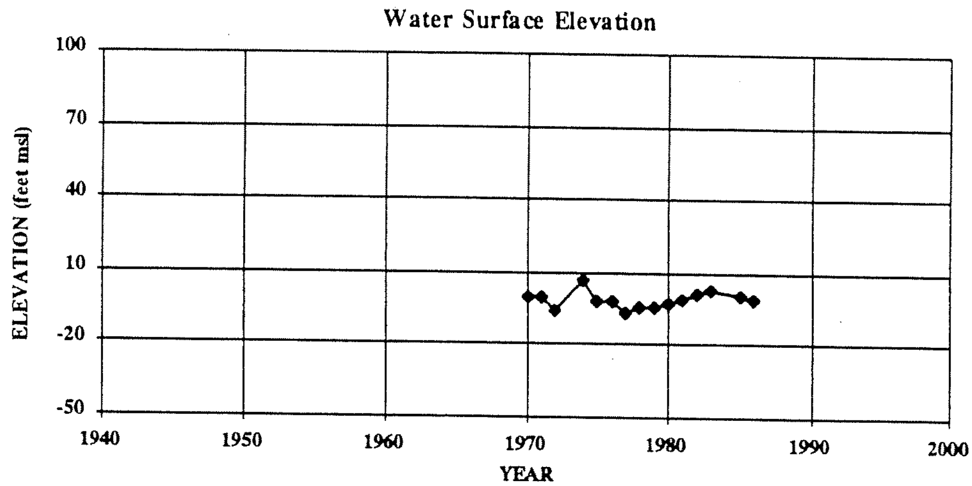
Use: IRRIGATION

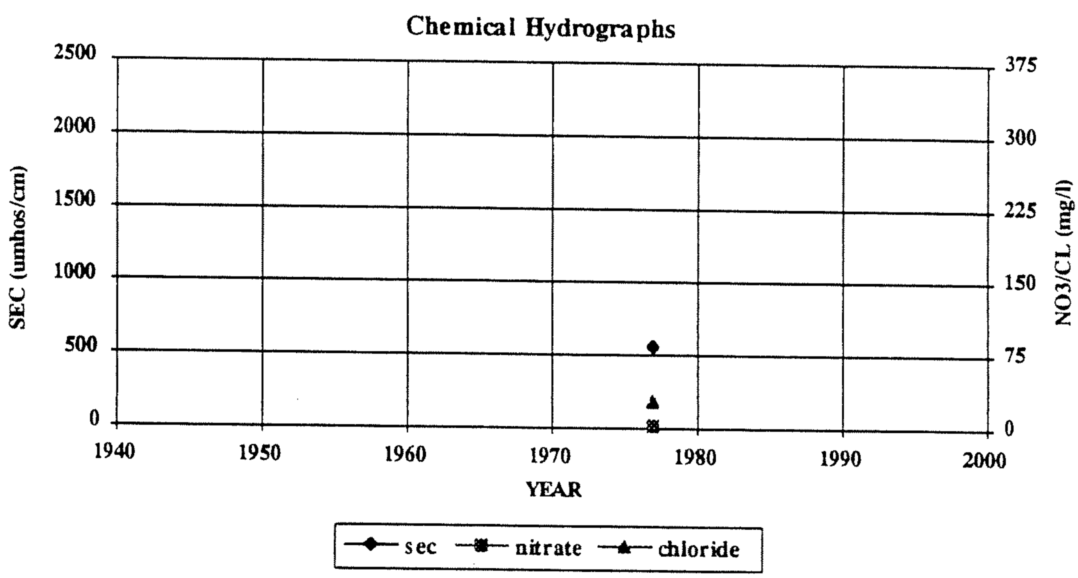
Ground Surface Elevation: 29.9

Perforation Rng Elevations -90.1 - -282.1

Depth: 424

Perforation Range: 120 - 312





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-10J02

Area: PAJARO-SPRINGFIELD

Use: IRRIGATION

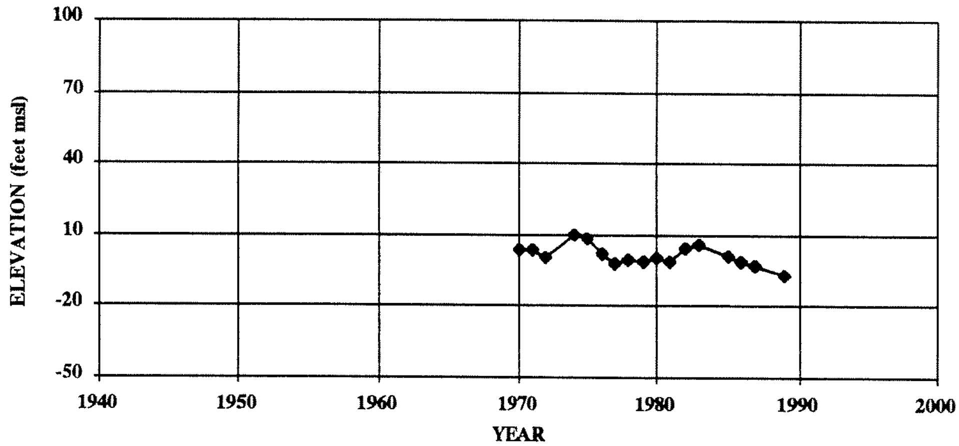
Ground Surface Elevation: 32.9

Perforation Rng Elevations -46.1 - -122.1

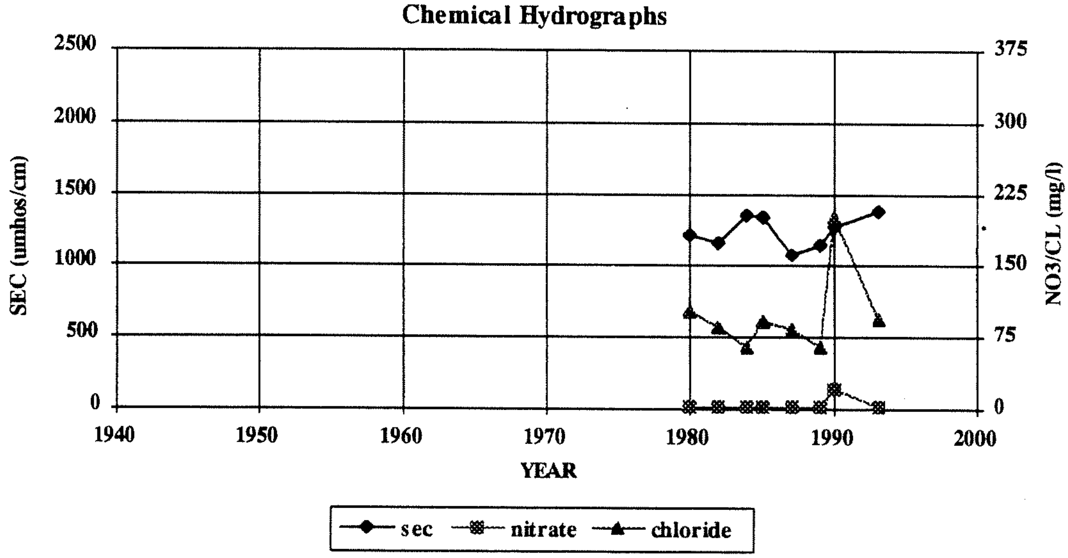
Depth: 186

Perforation Range: 79 - 155

Water Surface Elevation



Chemical Hydrographs



North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-11E04

Area: PAJARO-SPRINGFIELD

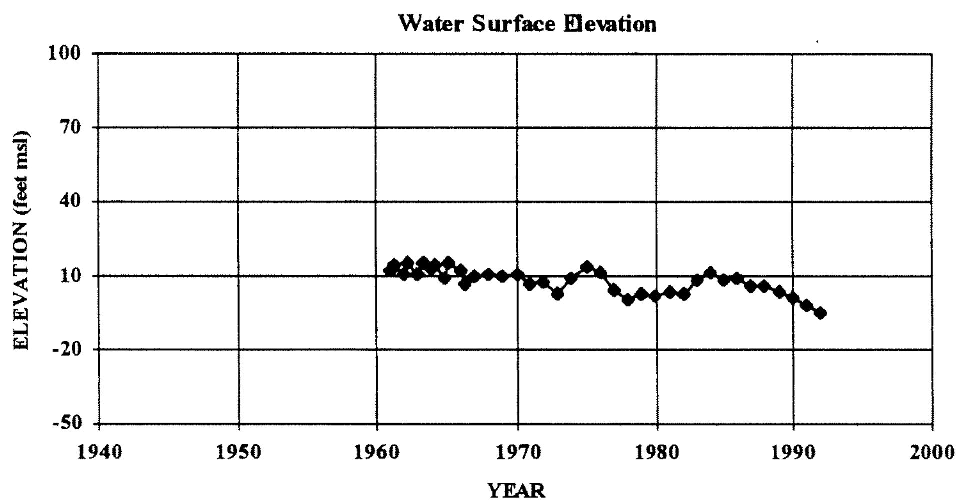
Use: IRRIGATION

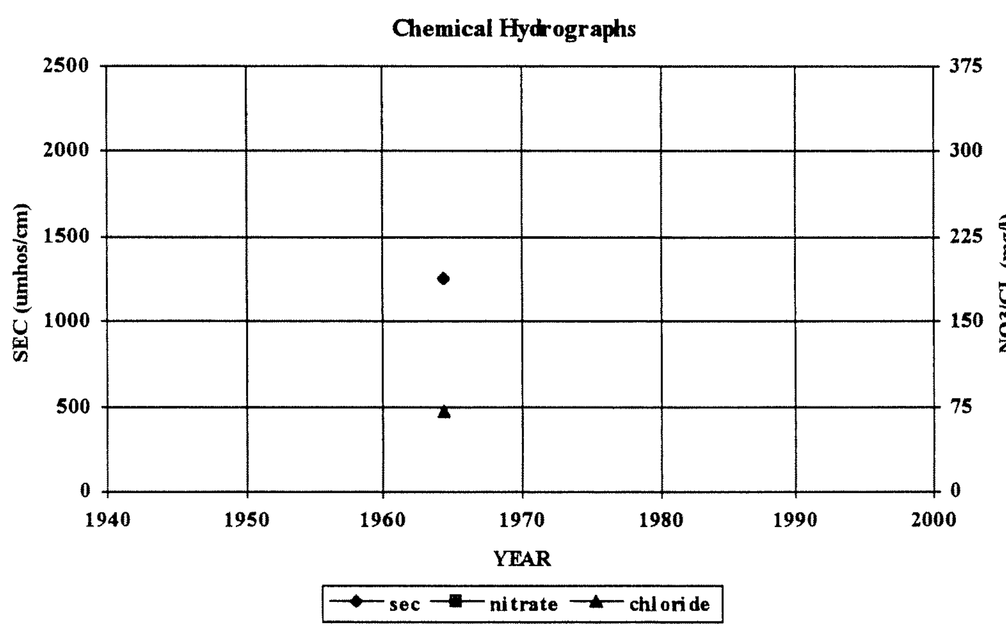
Ground Surface Elevation: 37.8

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-12E01

Area: PAJARO-SPRINGFIELD

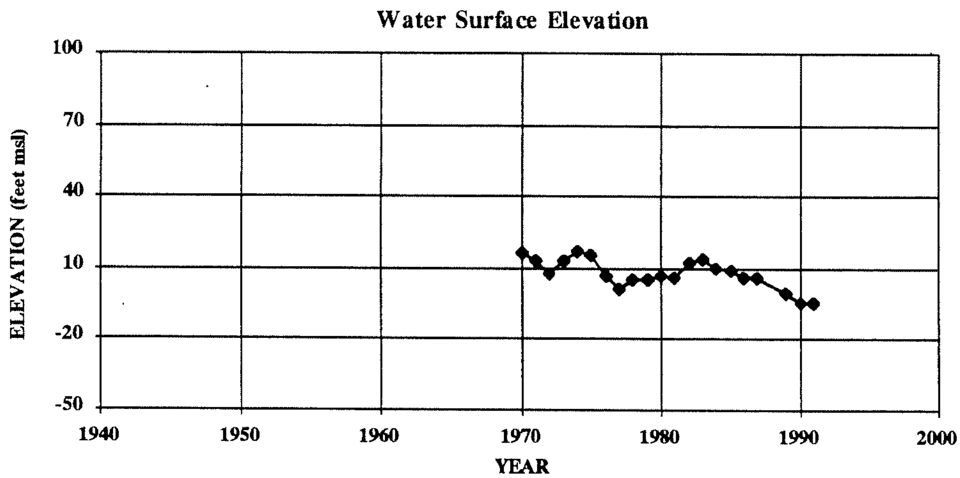
Use: IRRIGATION

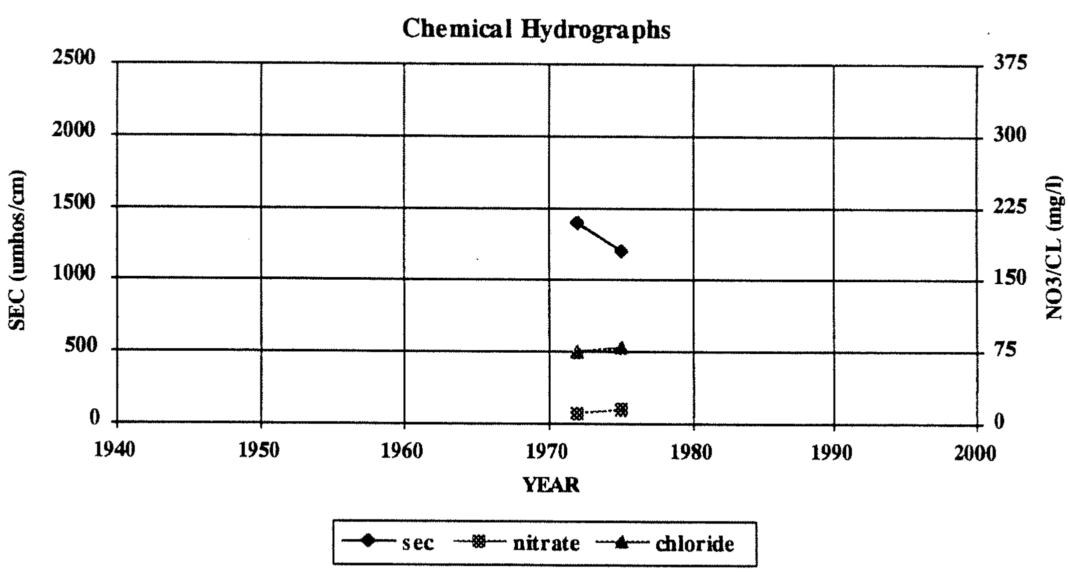
Ground Surface Elevation: 47

Perforation Rng Elevations -83 - -121

Depth: 168

Perforation Range: 130 - 168





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-12J01

Area: PAJARO-SPRINGFIELD

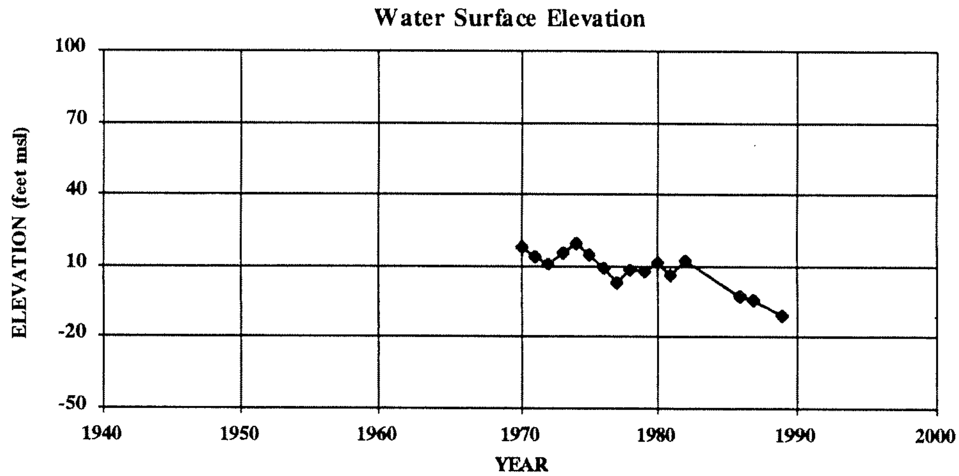
Use: IRRIGATION

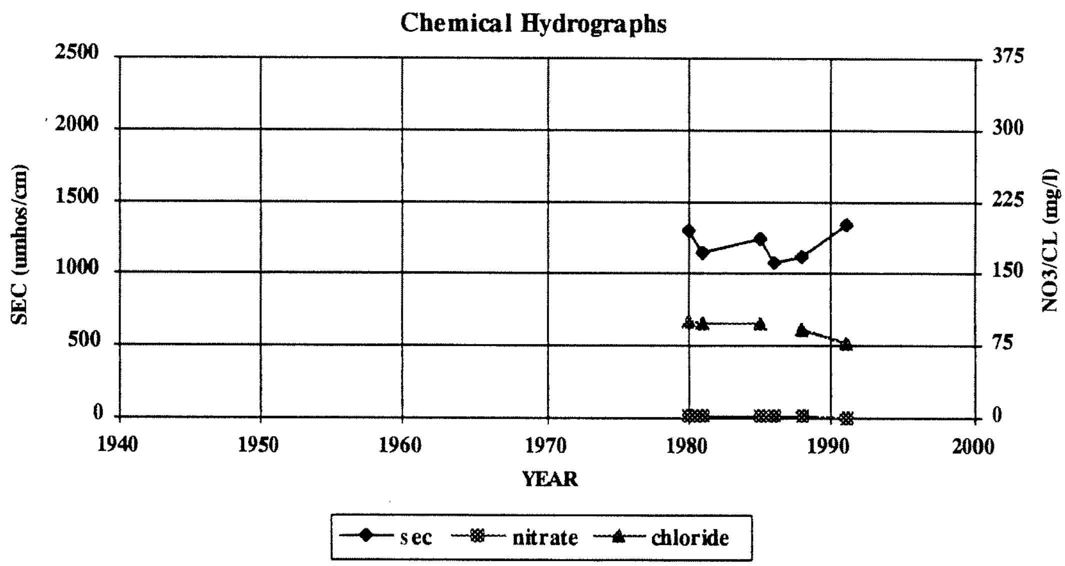
Ground Surface Elevation: 56.6

Perforation Rng Elevations -66.4 - -105.4

Depth: 167

Perforation Range: 123 - 162





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-12K01

Area: PAJARO-SPRINGFIELD

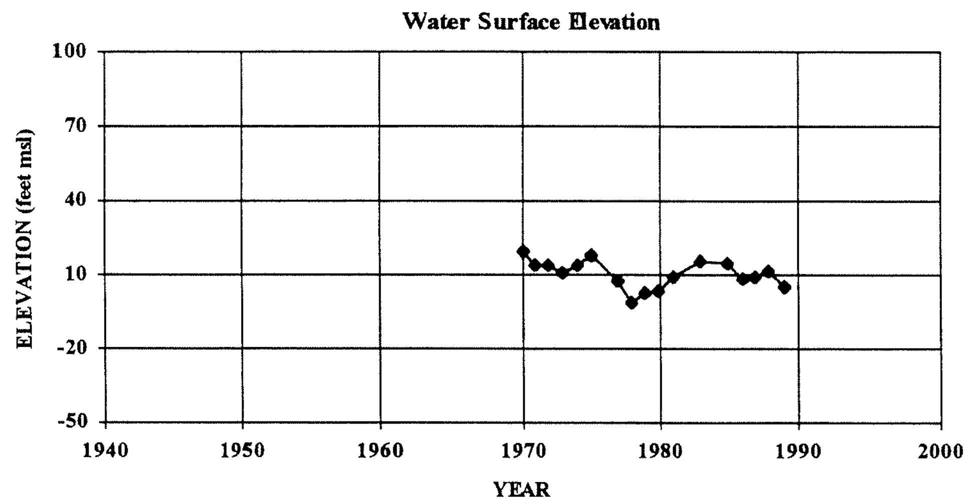
Use: IRRIGATION

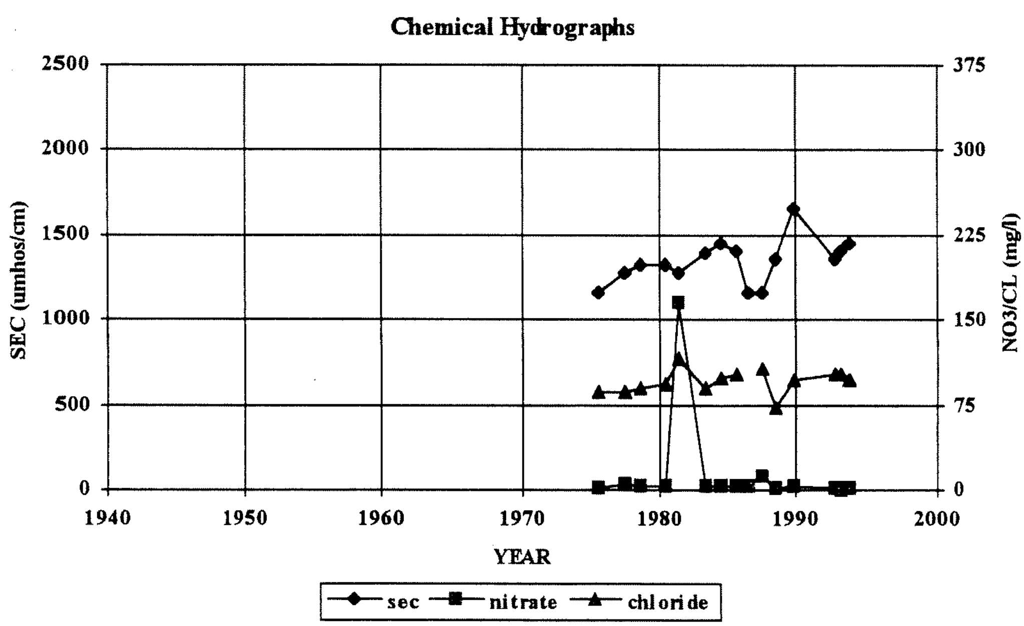
Ground Surface Elevation: 53.5

Perforation Rng Elevations: -71.5 - -121.5

Depth: 180

Perforation Range: 125 - 175





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-15E01

Area: PAJARO-SPRINGFIELD

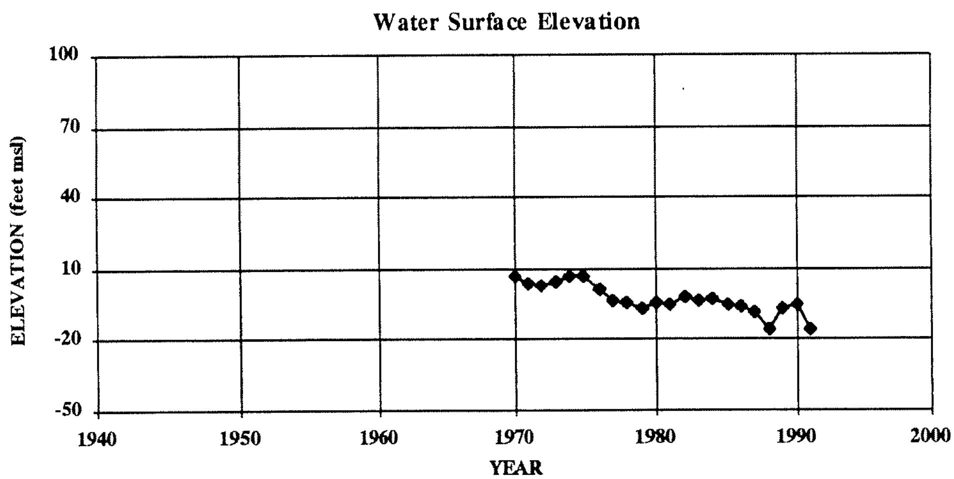
Use: IRRIGATION

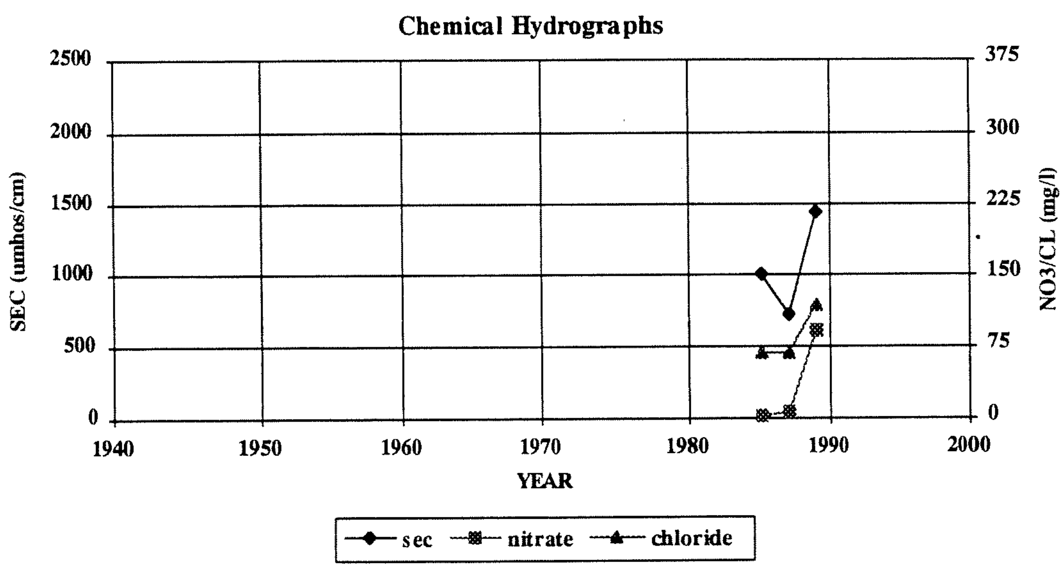
Ground Surface Elevation: 25.2

Perforation Rng Elevations -64.8 - -258.8

Depth: 320

Perforation Range: 90 - 284





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-16F01

Area: PAJARO-SPRINGFIELD

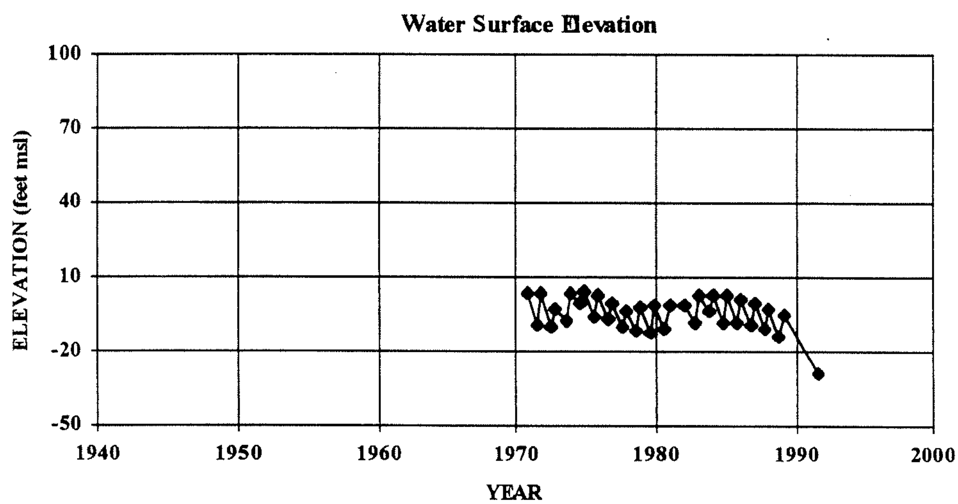
Use: IRRIGATION

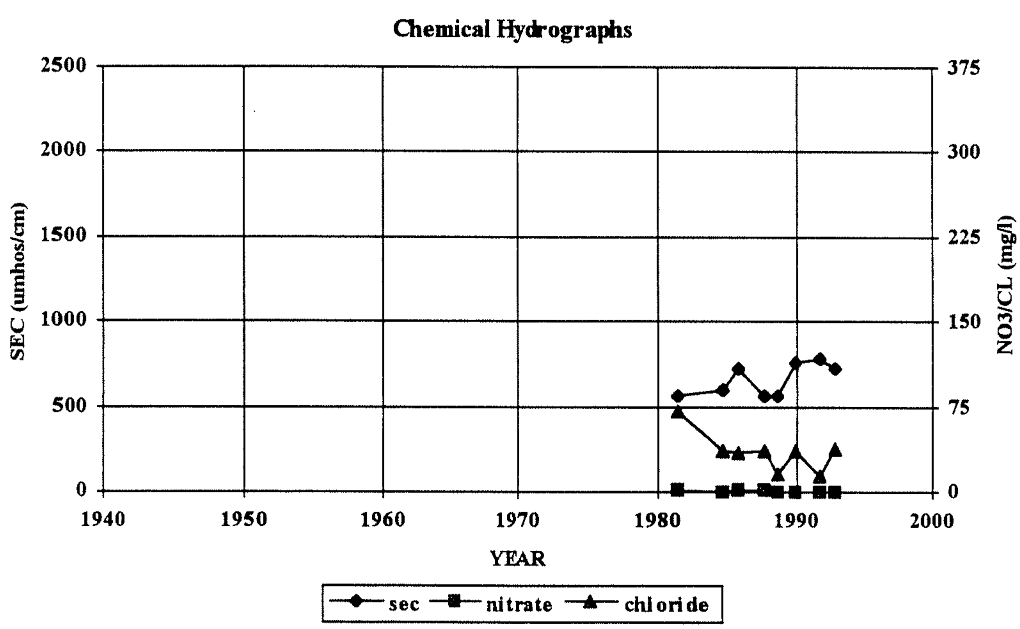
Ground Surface Elevation: 22.5

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-16J01

Area: PAJARO-SPRINGFIELD

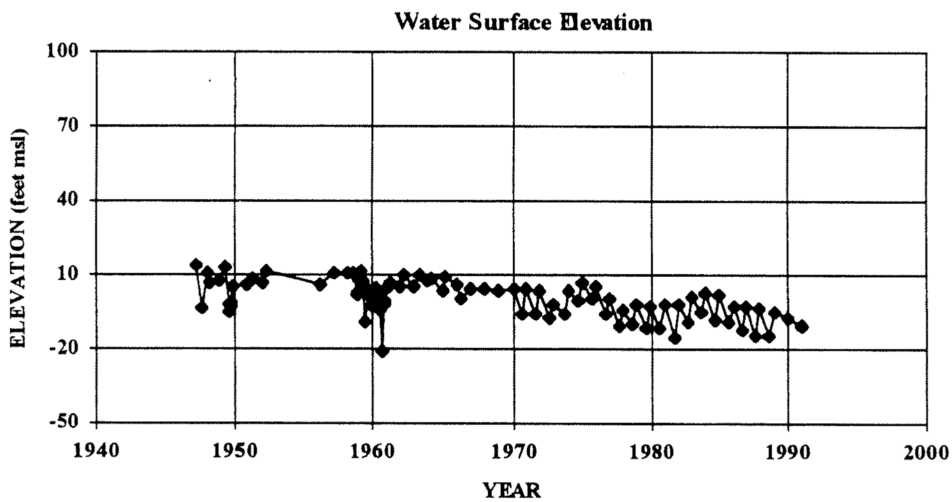
Use: IRRIGATION

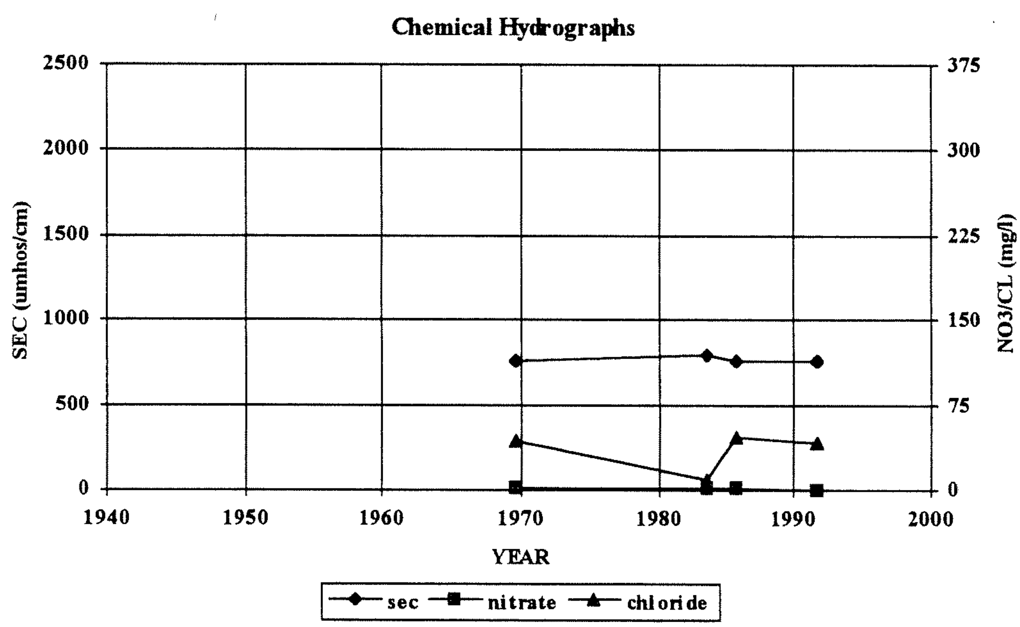
Ground Surface Elevation: 21.7

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-16L01

Area: PAJARO-SPRINGFIELD

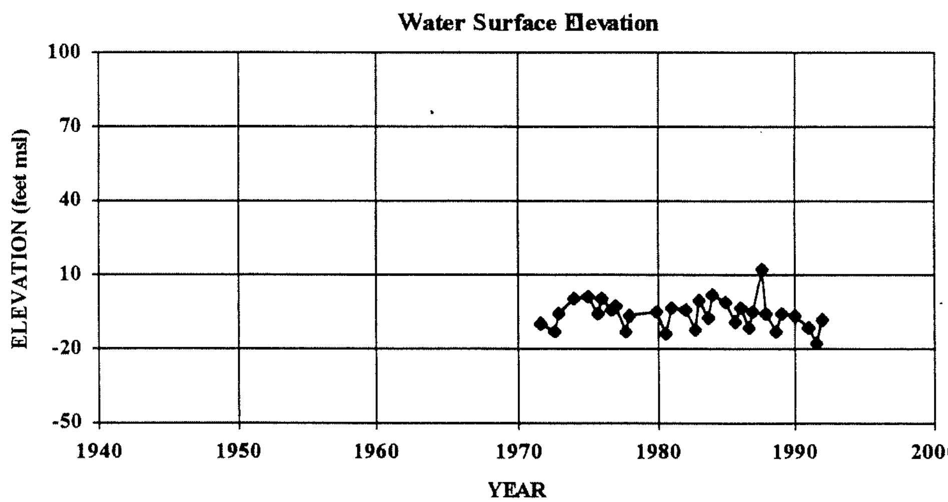
Use: IRRIGATION

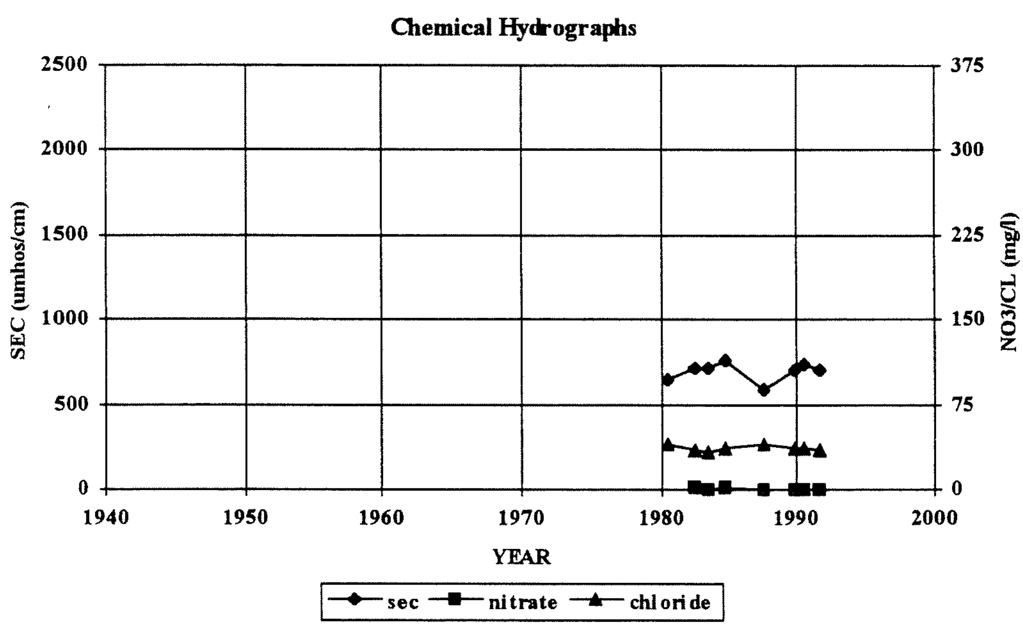
Ground Surface Elevation: 21.4

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-16Q01

Area: PAJARO-SPRINGFIELD

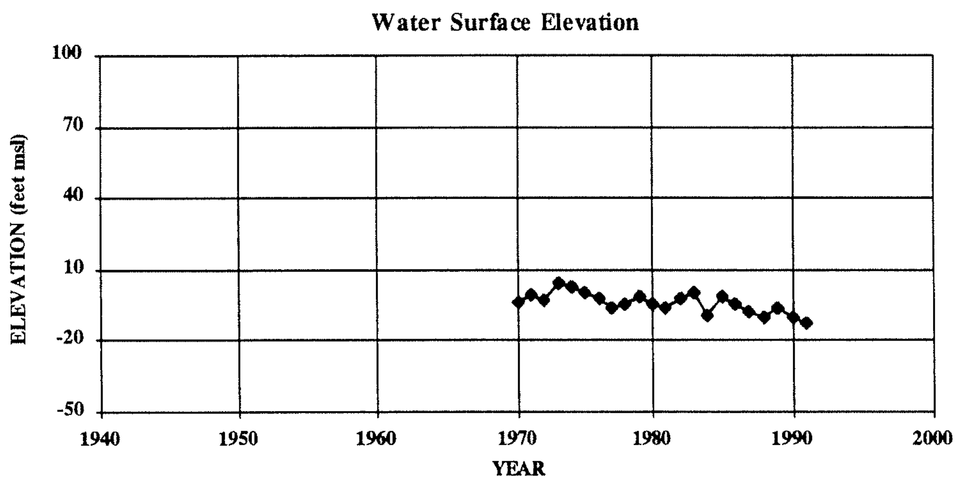
Use: IRRIGATION

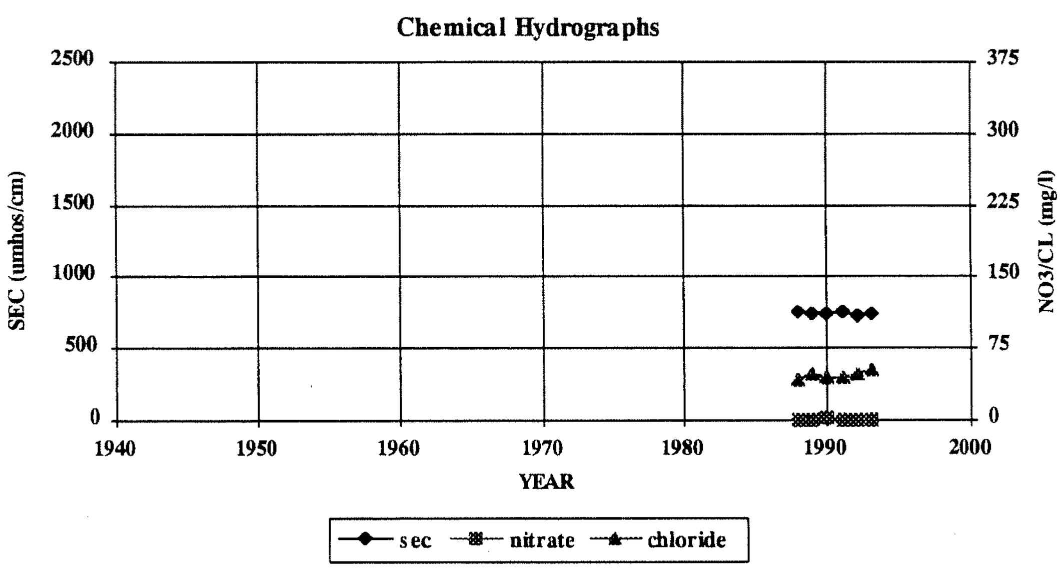
Ground Surface Elevation: 20.7

Perforation Rng Elevations -267.3 - -411.3

Depth: 700

Perforation Range: 288 - 432





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-17R01

Area: PAJARO-SPRINGFIELD

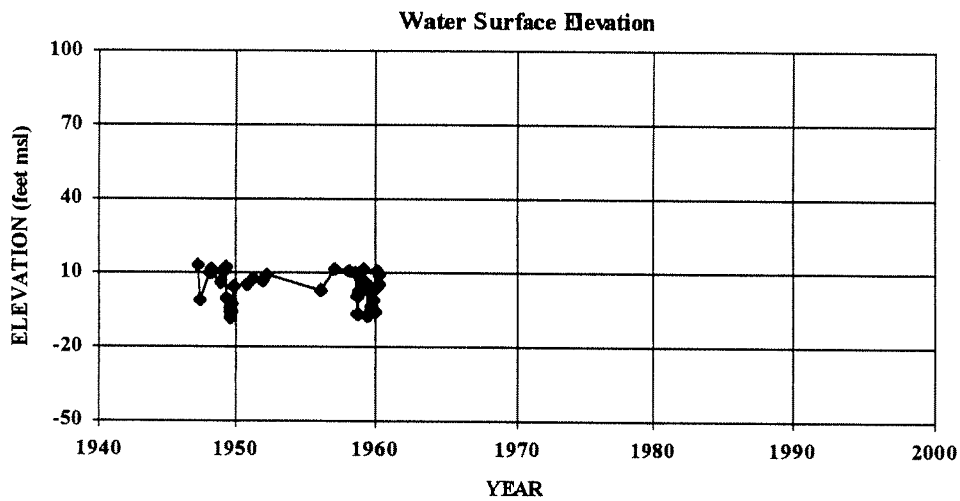
Use: IRRIGATION

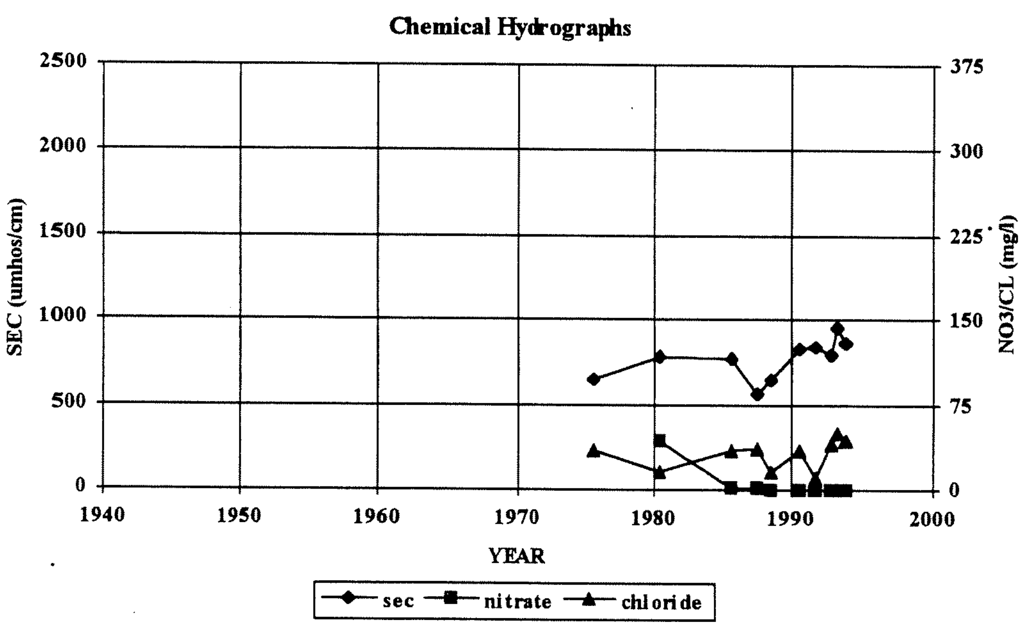
Ground Surface Elevation: 20.2

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-19A02

Area: PAJARO-SPRINGFIELD

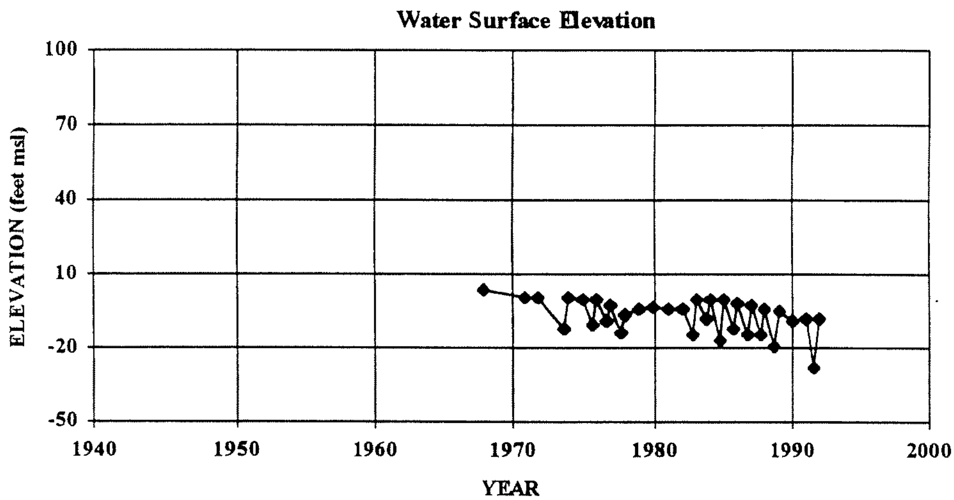
Use: IRRIGATION

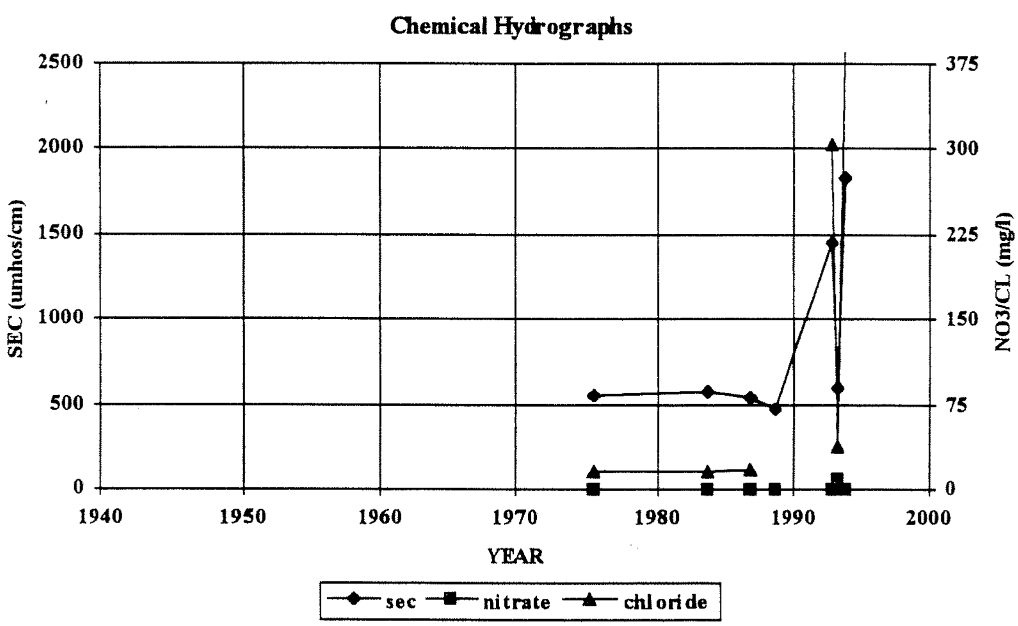
Ground Surface Elevation: 12

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-20K01

Area: PAJARO-SPRINGFIELD

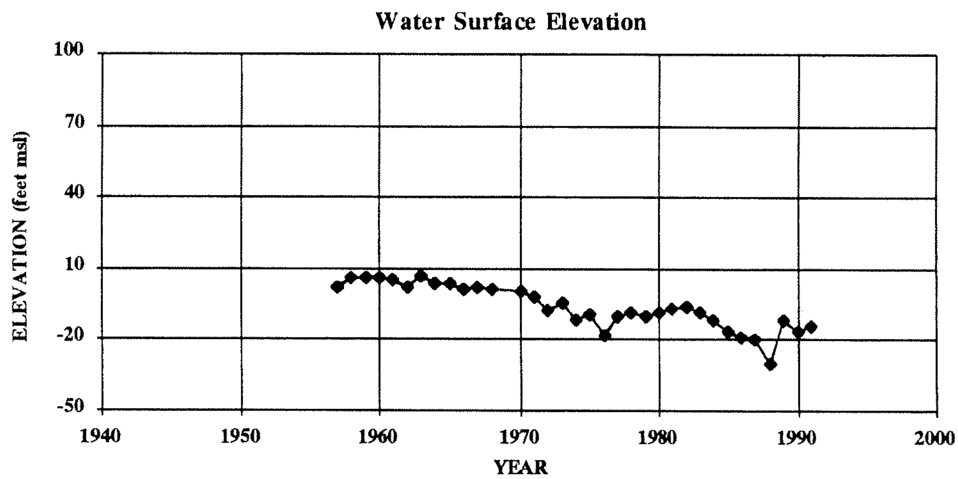
Use: IRRIGATION

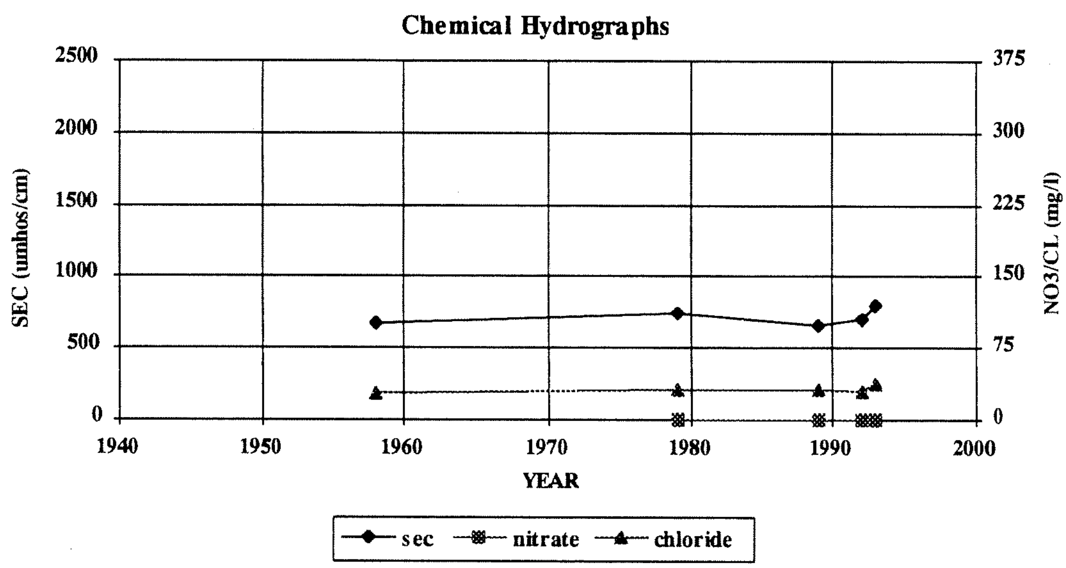
Ground Surface Elevation: 173.5

Perforation Rng Elevations -26.5 - -116.5

Depth: 310

Perforation Range: 200 - 290





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-20K02

Area: PAJARO-SPRINGFIELD

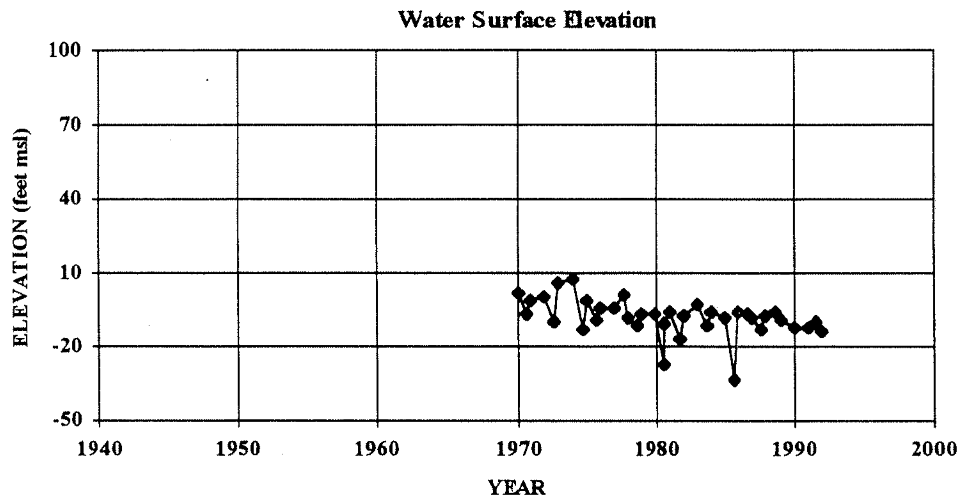
Use: IRRIGATION

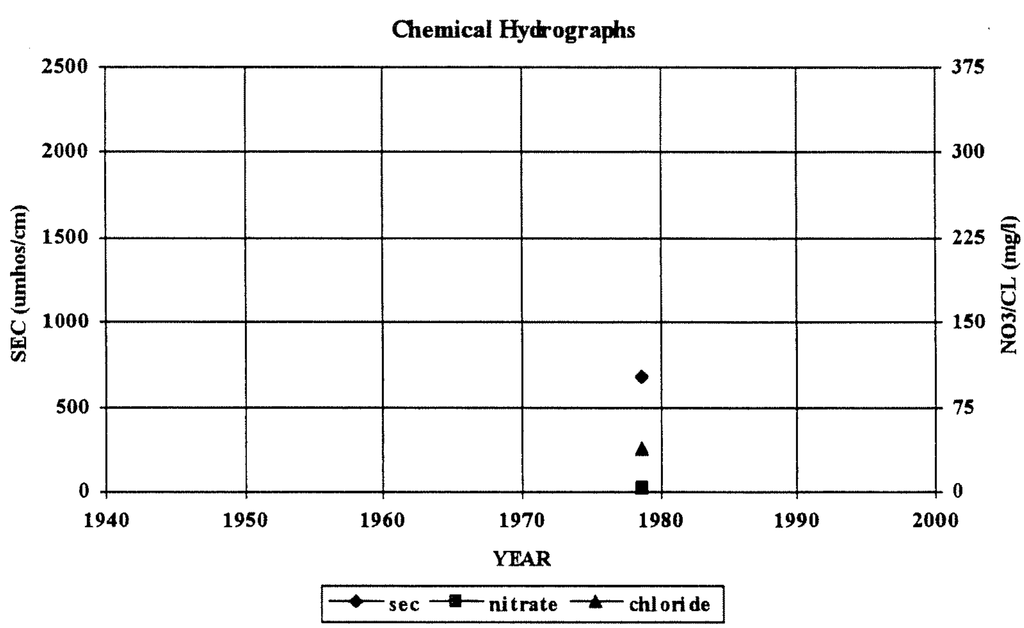
Ground Surface Elevation: 179

Perforation Rng Elevations: -21 - -111

Depth: 310

Perforation Range: 200 - 290





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-29A01

Area: PAJARO-SPRINGFIELD

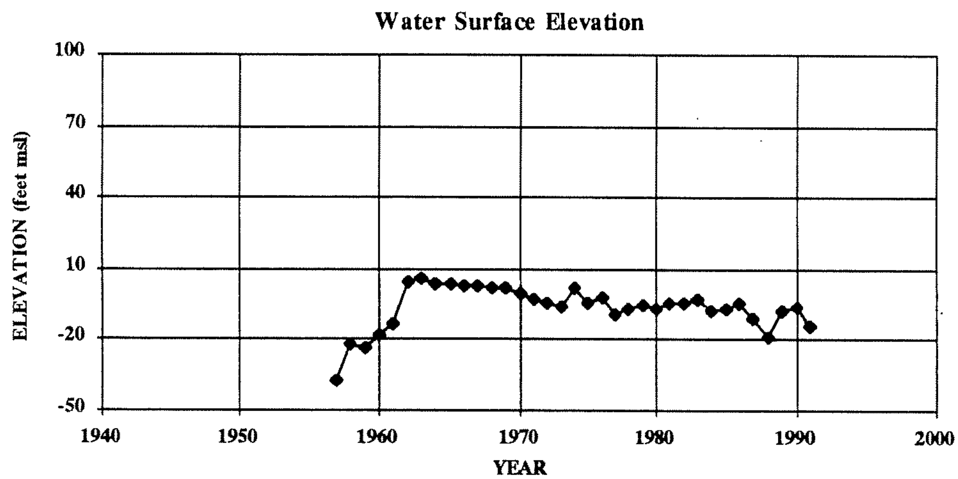
Use: IRRIGATION

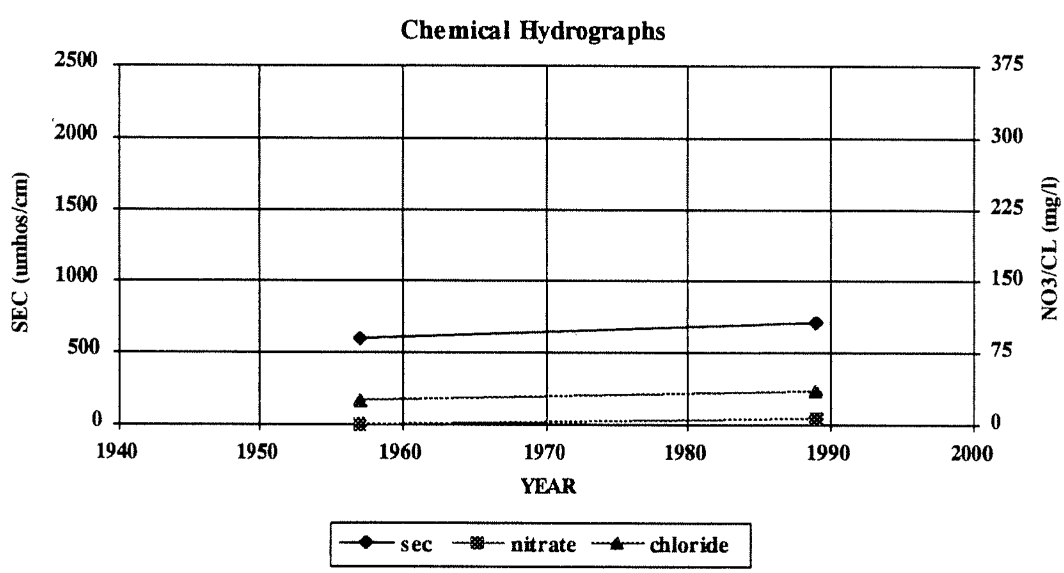
Ground Surface Elevation: 160

Perforation Rng Elevations 2 - -40

Depth: 200

Perforation Range: 158 - 200





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-29L01

Area: PAJARO-SPRINGFIELD

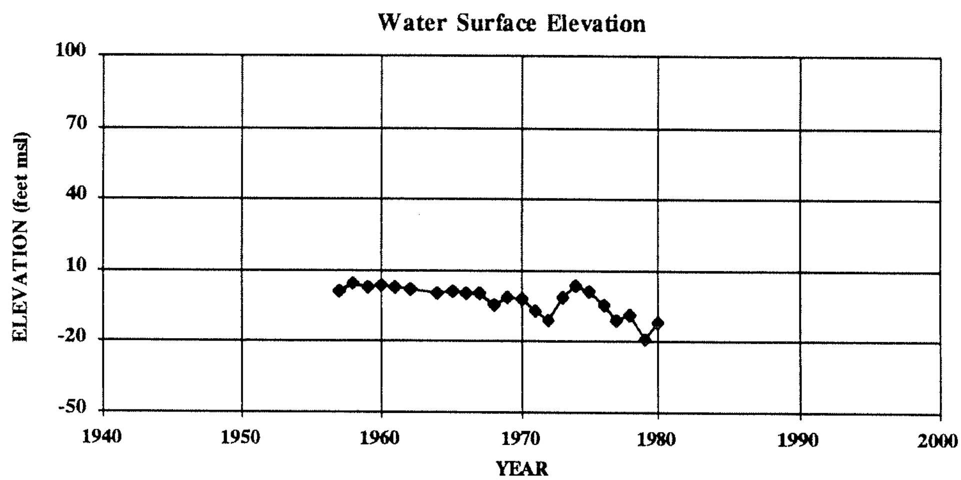
Use: IRRIGATION

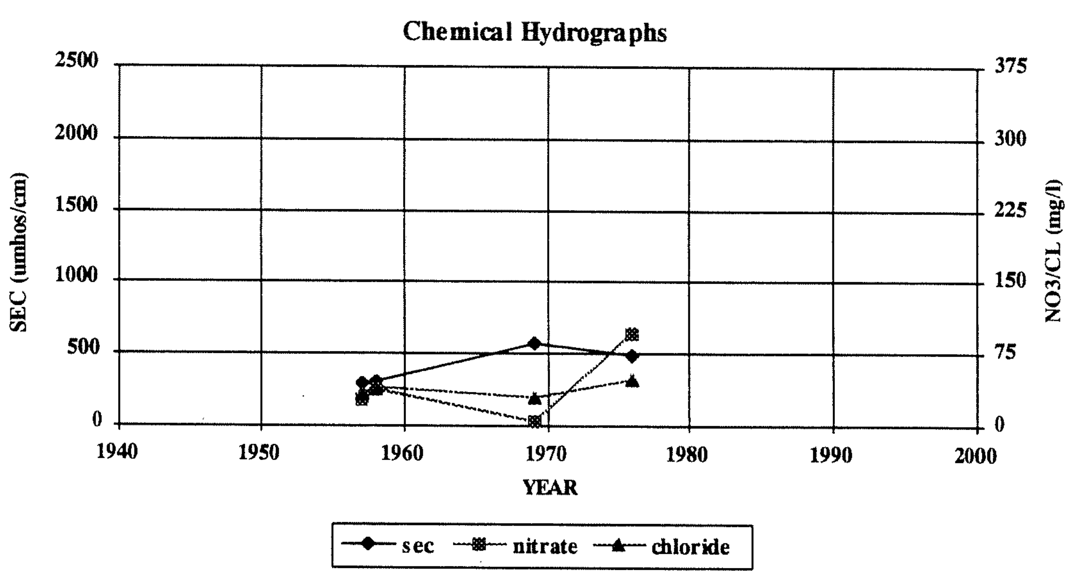
Ground Surface Elevation: 184.1

Perforation Rng Elevations -115.9 - -190.9

Depth: 375

Perforation Range: 300 - 375





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-29N01

Area: PAJARO-SPRINGFIELD

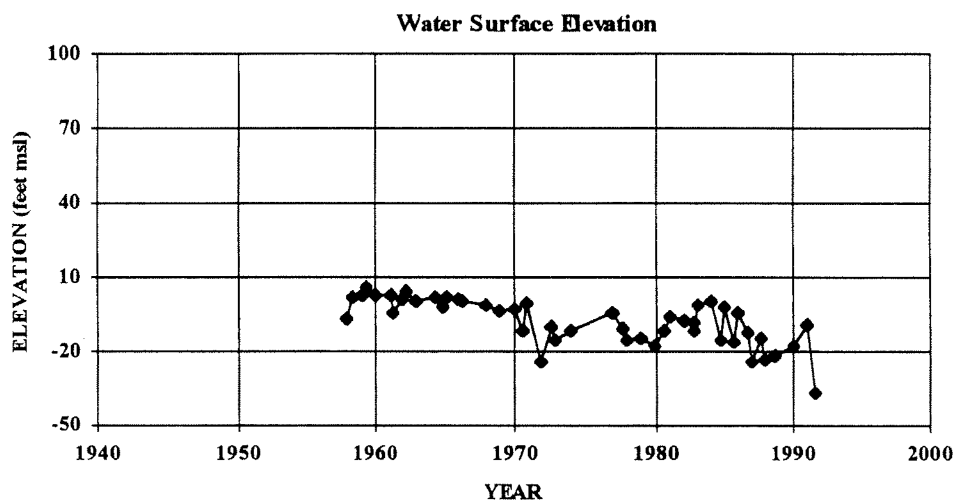
Use: IRRIGATION

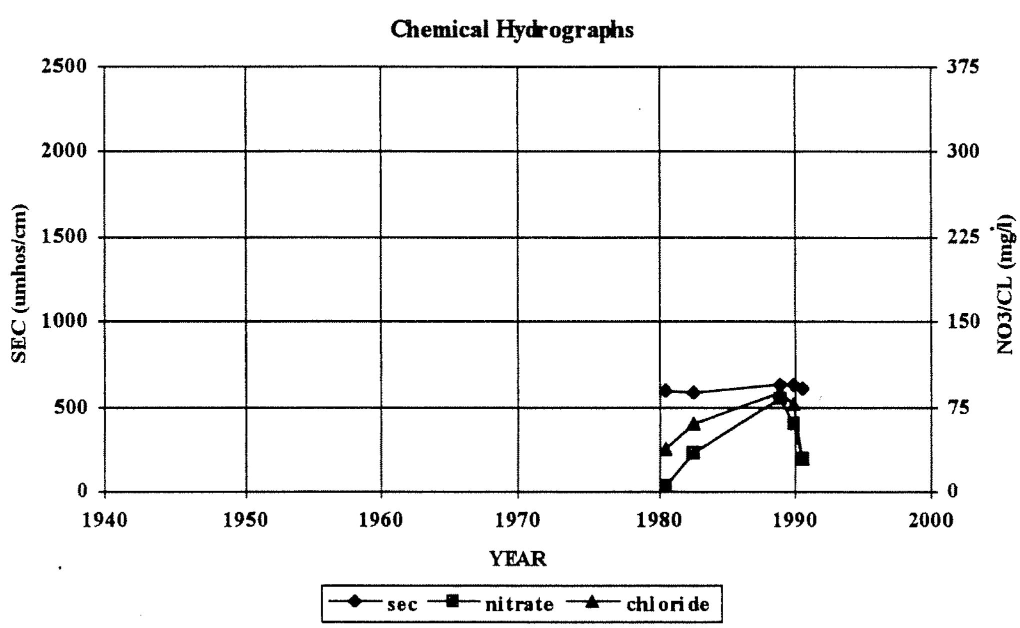
Ground Surface Elevation: 175.5

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-29P01

Area: PAJARO-SPRINGFIELD

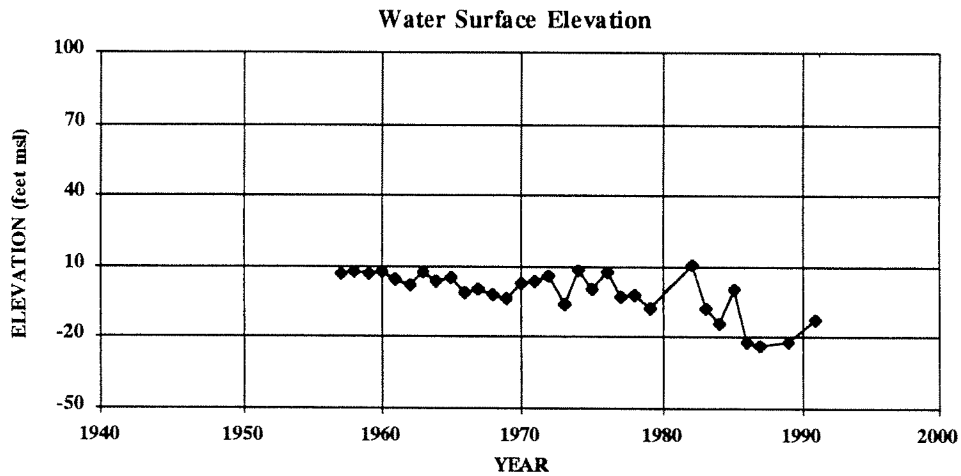
Use: IRRIGATION

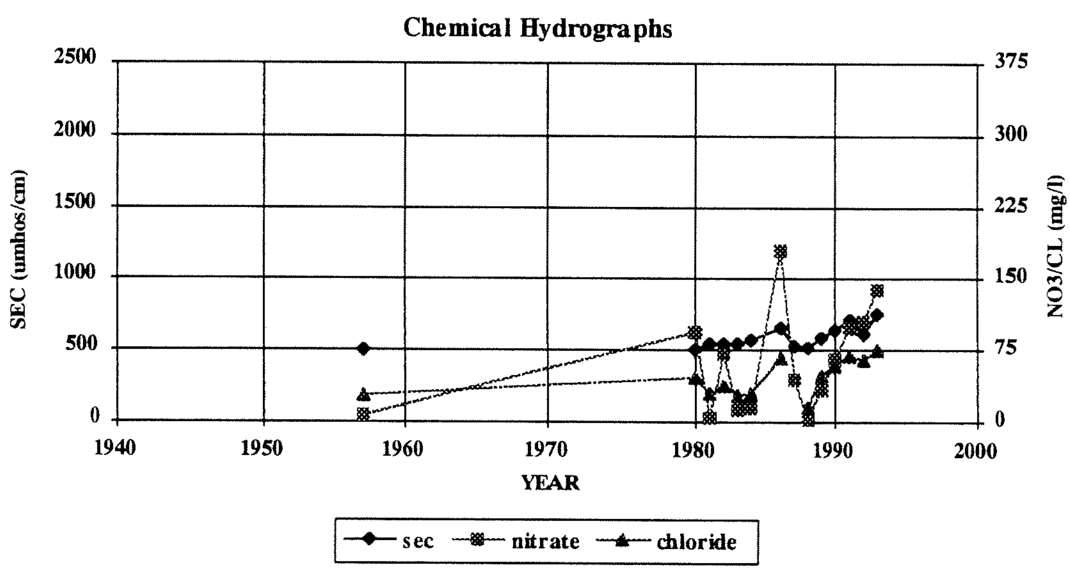
Ground Surface Elevation: 192.3

Perforation Rng Elevations -53.7 - -203.7

Depth: 397

Perforation Range: 246 - 396





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-29R01

Area: PAJARO-SPRINGFIELD

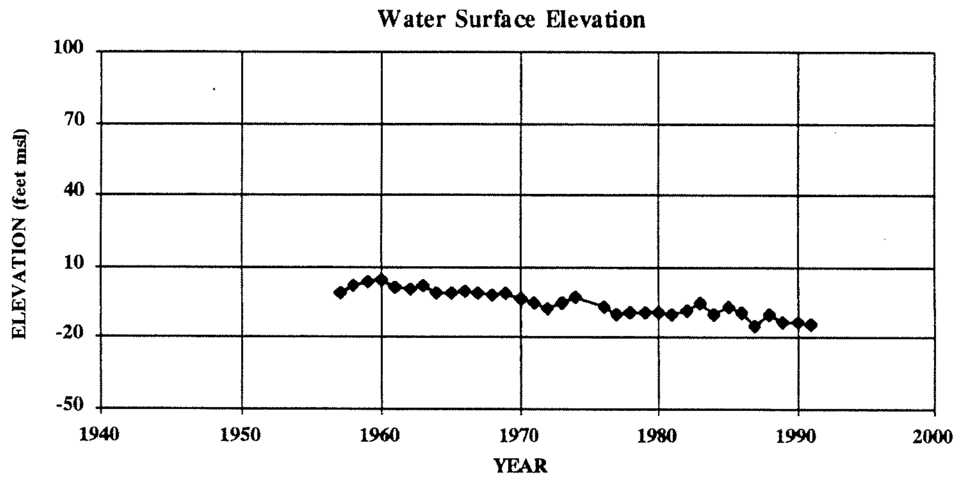
Use: IRRIGATION

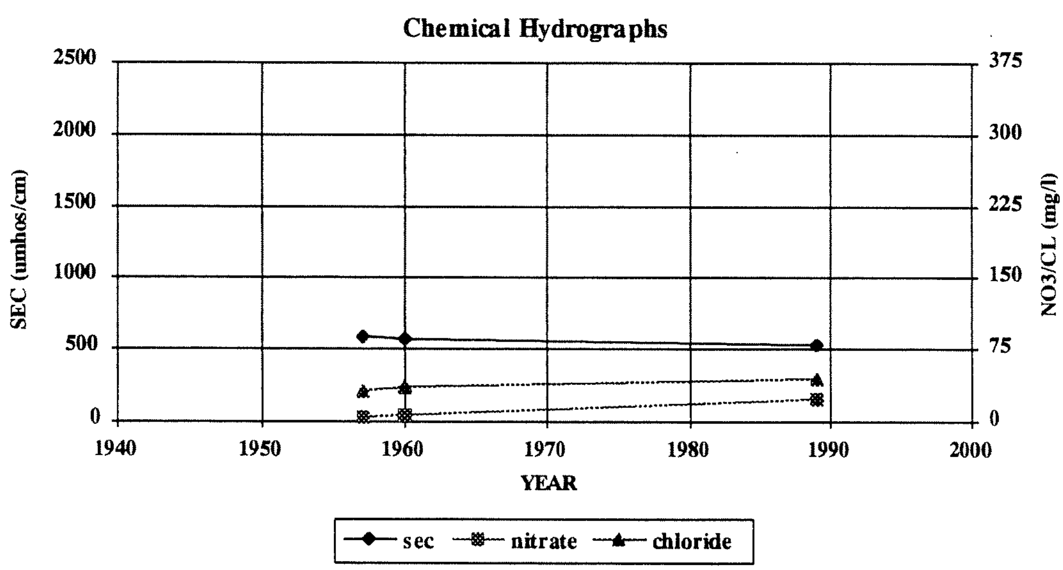
Ground Surface Elevation: 69.3

Perforation Rng Elevations -100.7 - -180.7

Depth: 250

Perforation Range: 170 - 250





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-30E01

Area: PAJARO-SPRINGFIELD

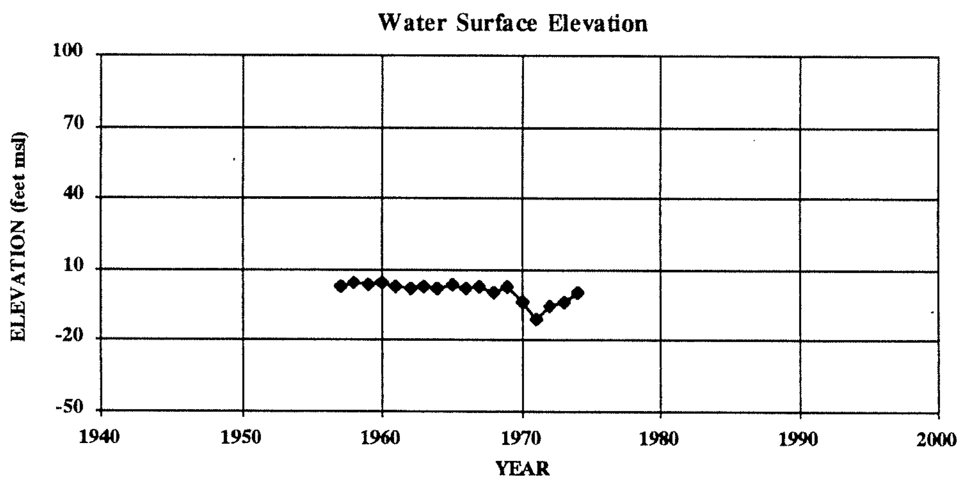
Use: IRRIGATION

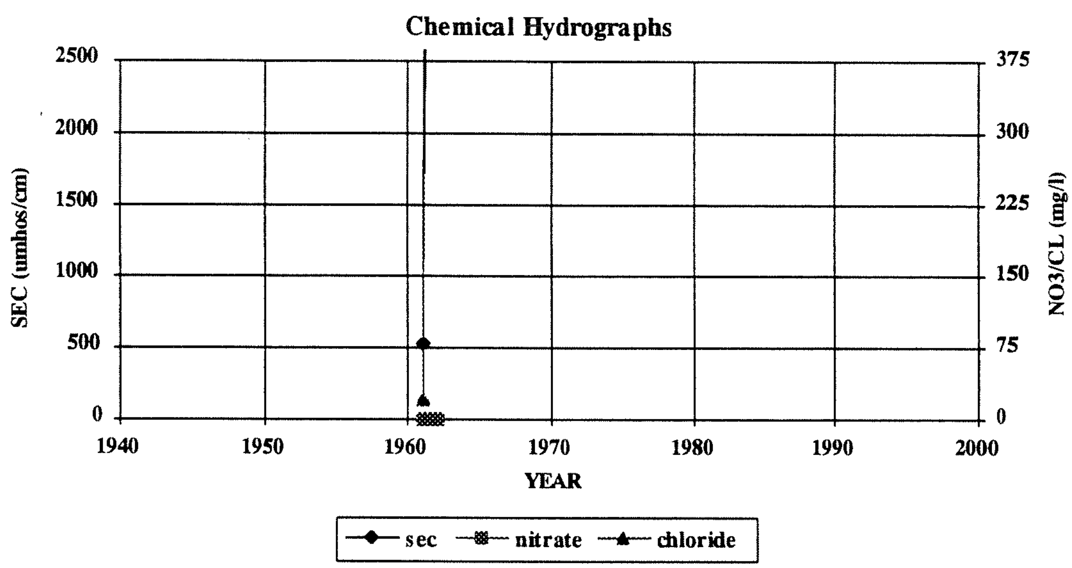
Ground Surface Elevation: 84.3

Perforation Rng Elevations -215.7 - -275.7

Depth: 360

Perforation Range: 300 - 360





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-30M02

Area: PAJARO-SPRINGFIELD

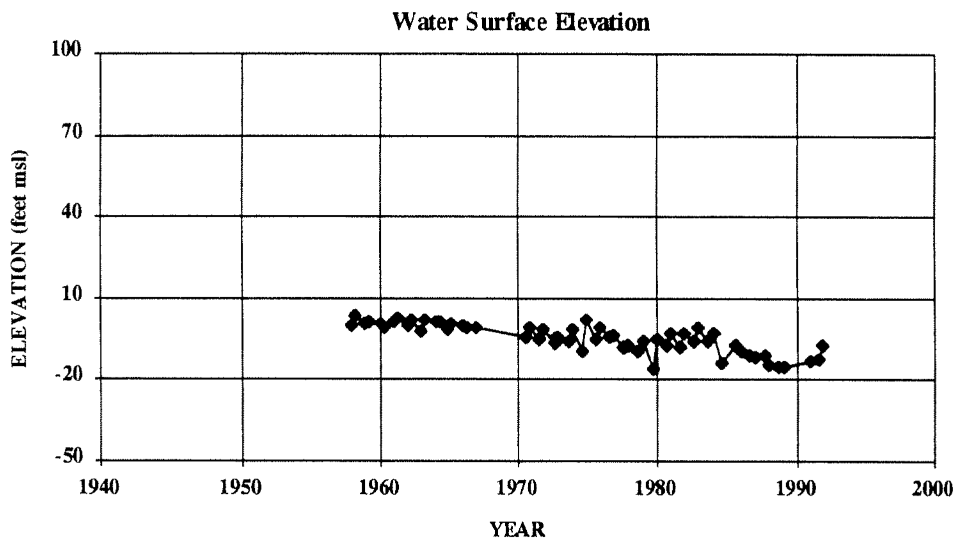
Use: IRRIGATION

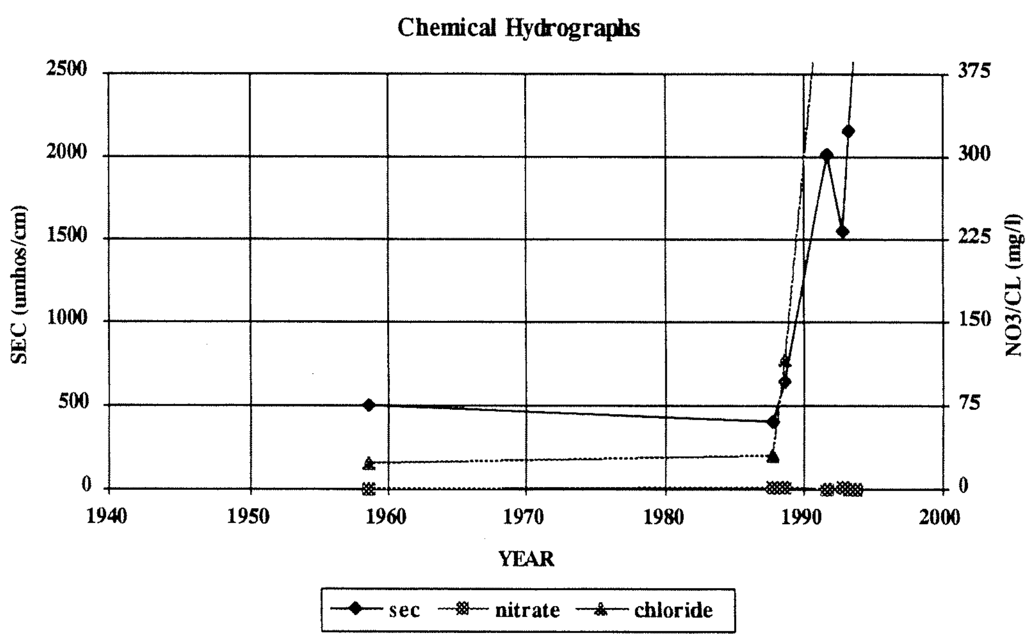
Ground Surface Elevation: 106.7

Perforation Rng Elevations -148.3 - -168.3

Depth: 400

Perforation Range: 255 - 275





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-30N01

Area: PAJARO-SPRINGFIELD

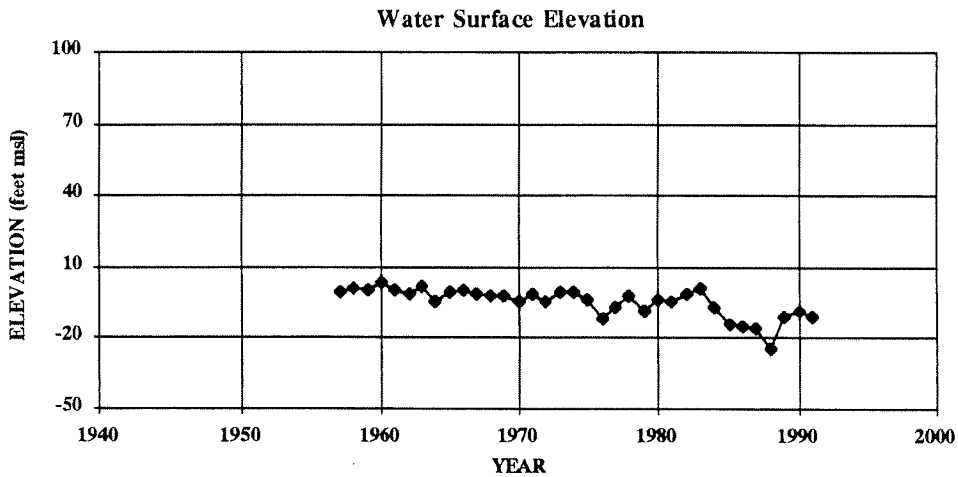
Use: IRRIGATION

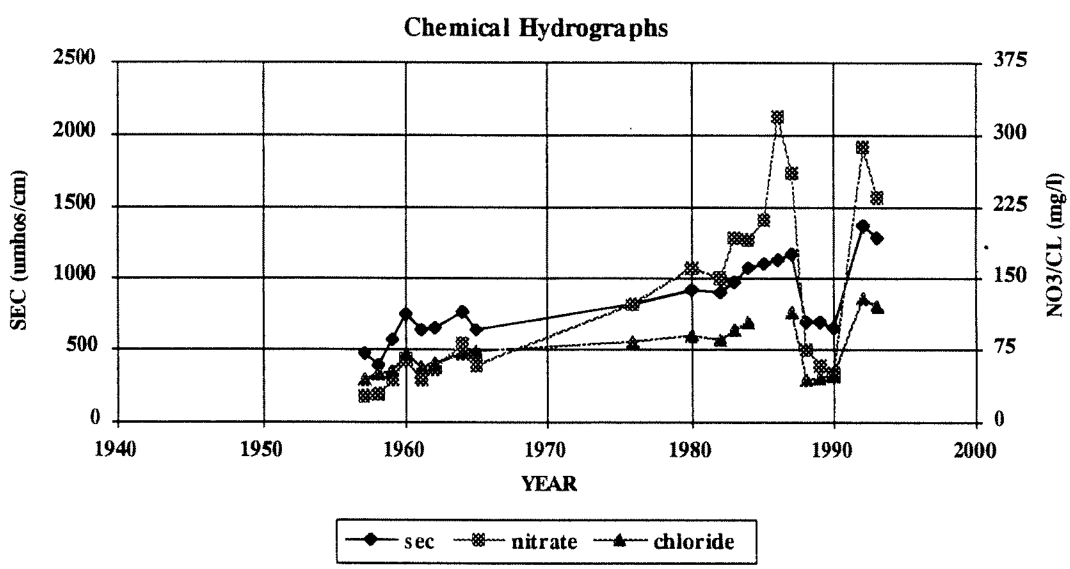
Ground Surface Elevation: 71

Perforation Rng Elevations -69 - -109

Depth: 180

Perforation Range: 140 - 180





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-31A01

Area: PAJARO-SPRINGFIELD

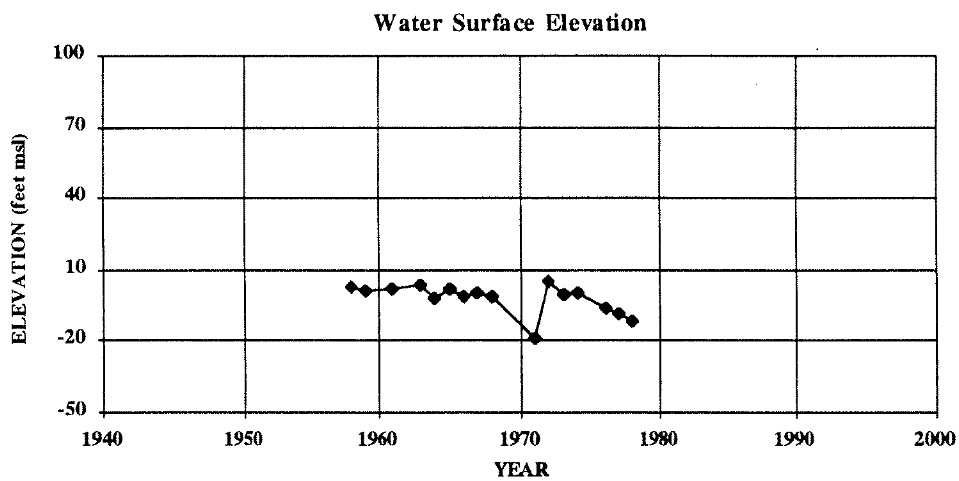
Use: IRRIGATION

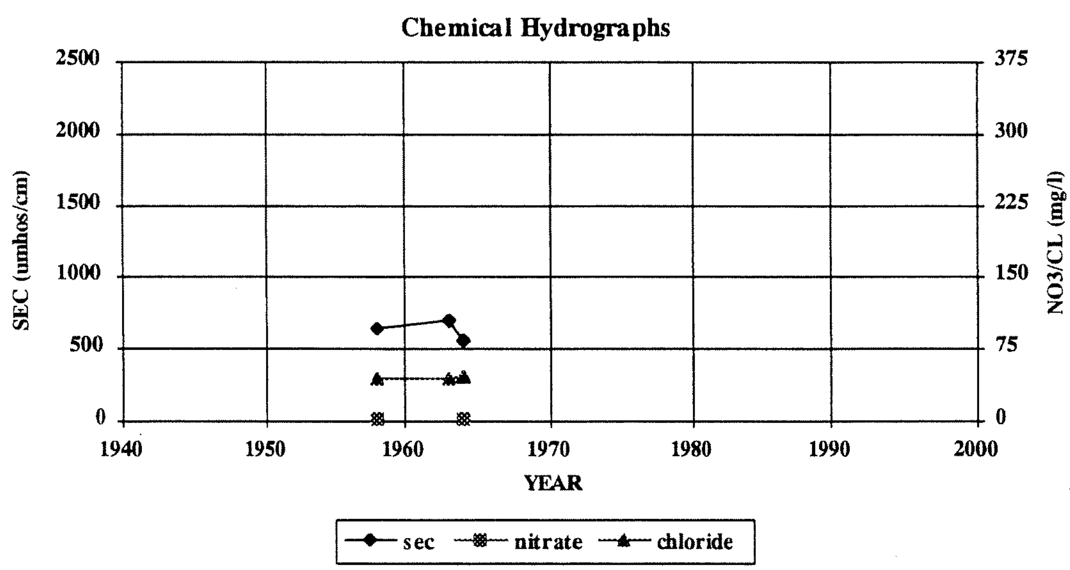
Ground Surface Elevation: 148.7

Perforation Rng Elevations -51.3 - -101.3

Depth: 250

Perforation Range: 200 - 250





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-31C02

Area: PAJARO-SPRINGFIELD

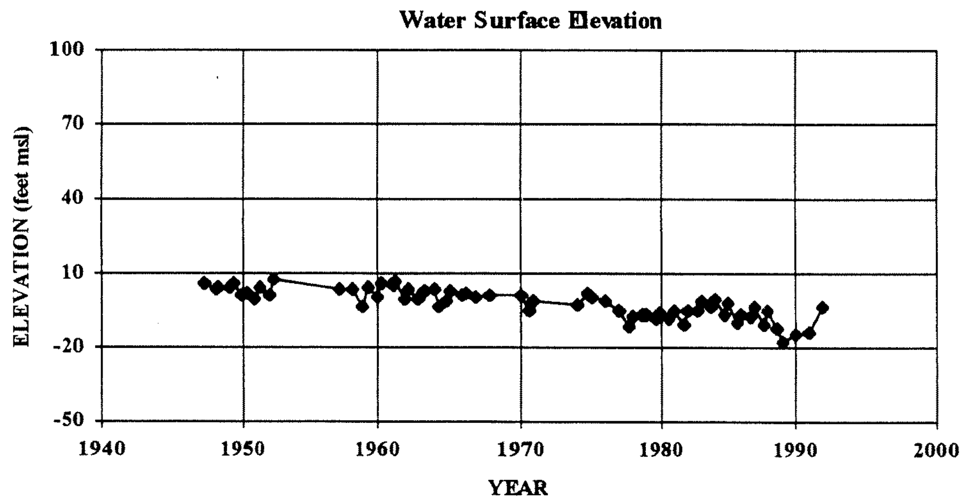
Use: IRRIGATION

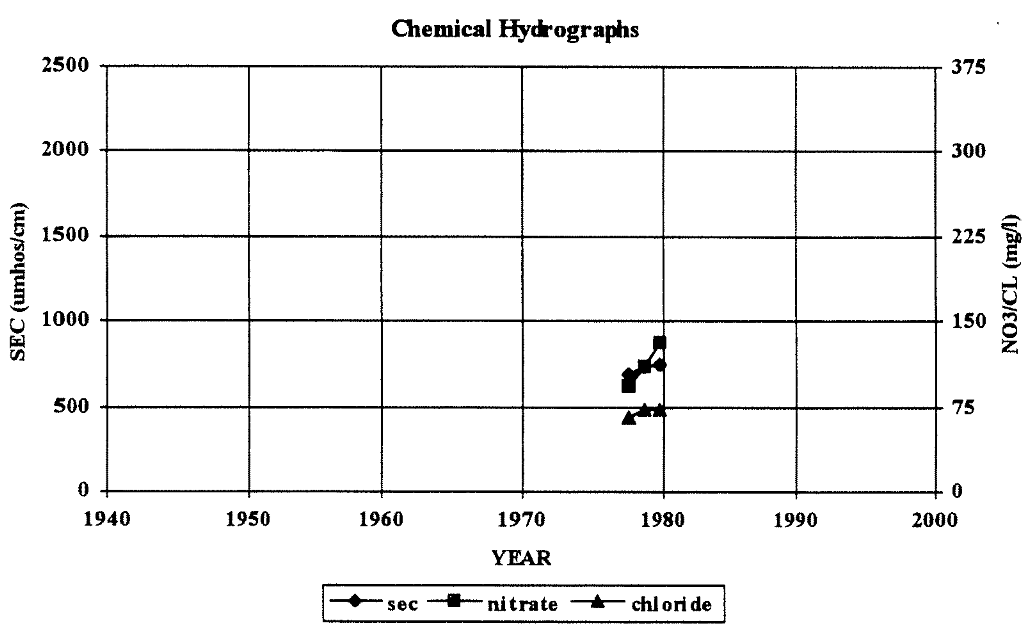
Ground Surface Elevation: 60

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-31K01

Area: PAJARO-SPRINGFIELD

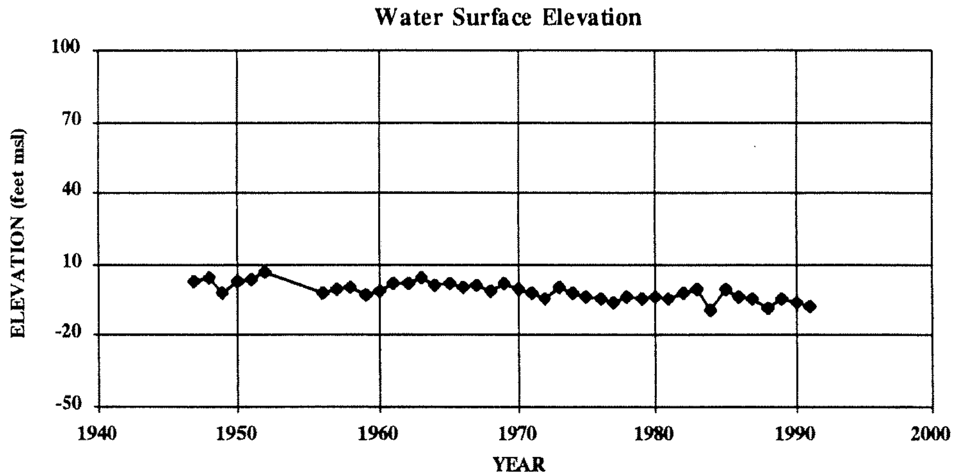
Use: IRRIGATION

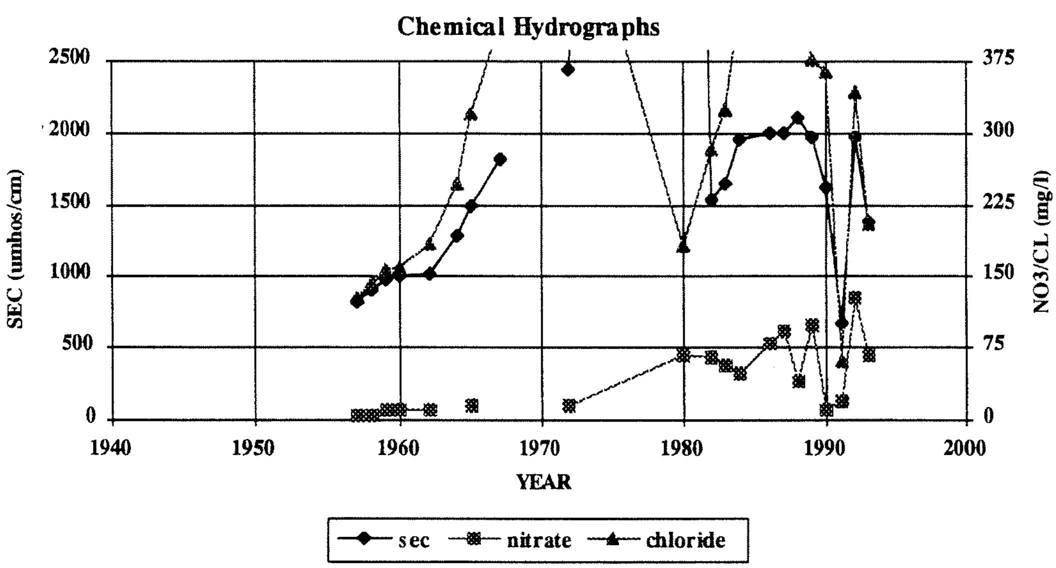
Ground Surface Elevation: 30

Perforation Rng Elevations -134 - -189

Depth: 219

Perforation Range: 164 - 219





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-32C01

Area: PAJARO-SPRINGFIELD

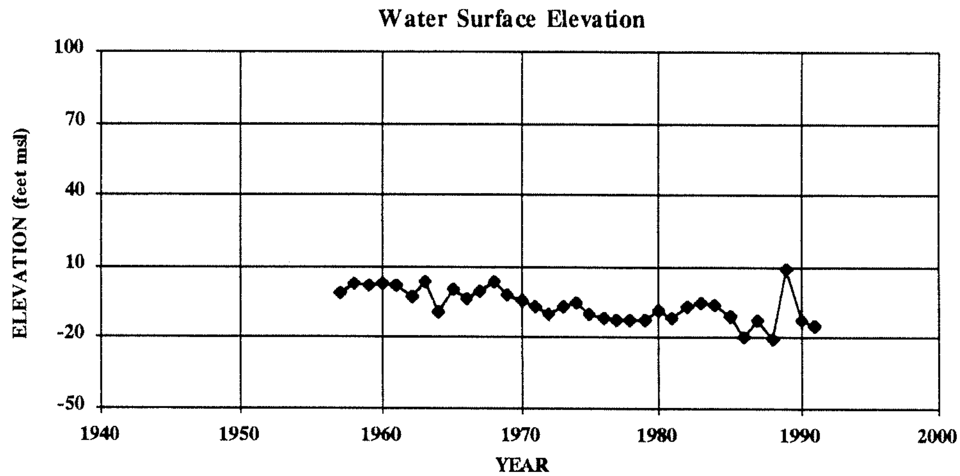
Use: IRRIGATION

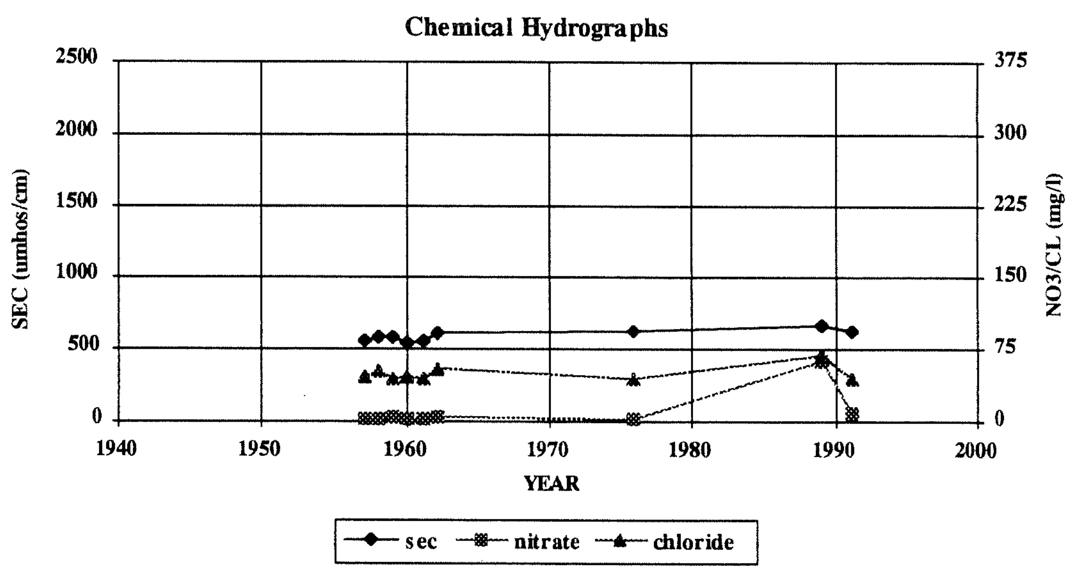
Ground Surface Elevation: 175.7

Perforation Rng Elevations 75.7 - -166.3

Depth: 342

Perforation Range: 100 - 342





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/02E-32N01

Area: PAJARO-SPRINGFIELD

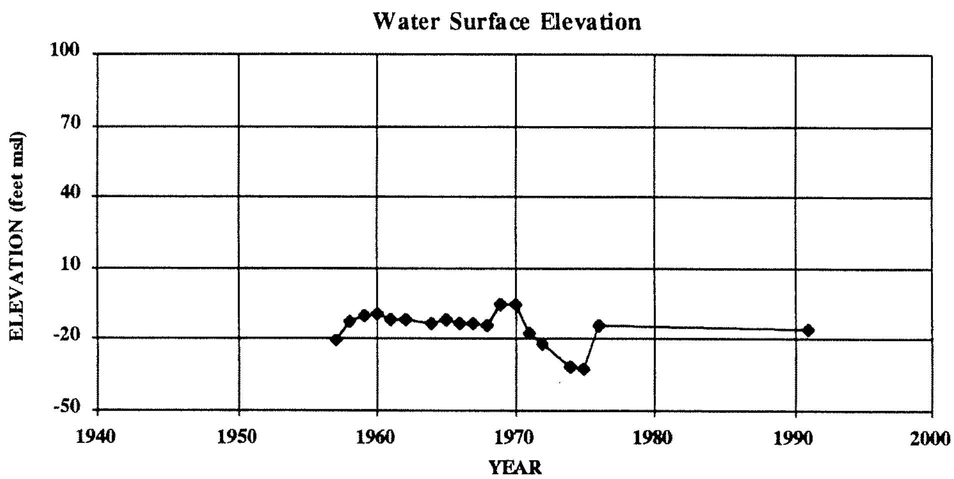
Use: IRRIGATION

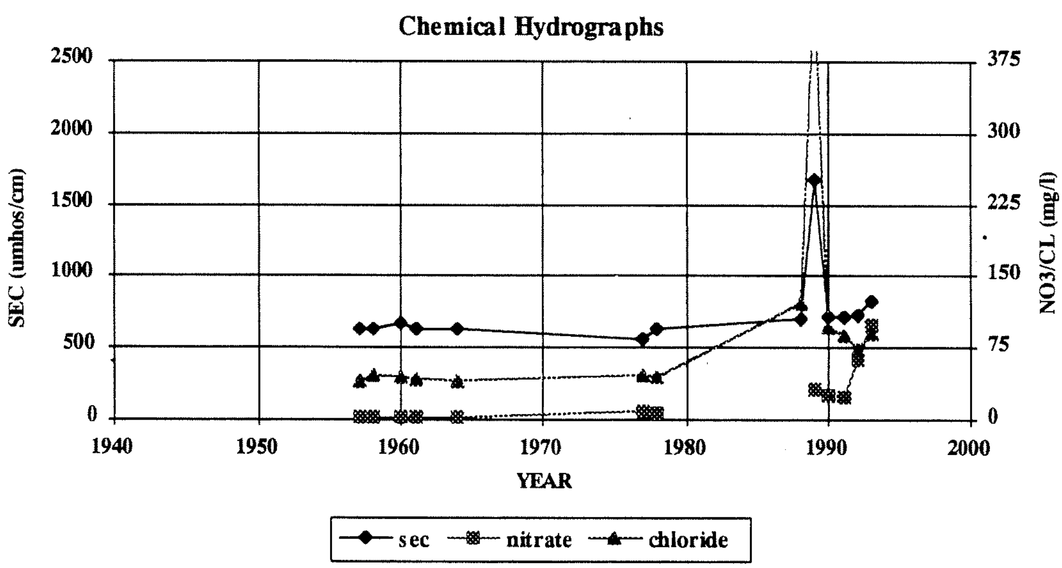
Ground Surface Elevation: 133

Perforation Rng Elevations -89 - -239

Depth: 372

Perforation Range: 222 - 372





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/03E-07J02

Area: PAJARO-SPRINGFIELD

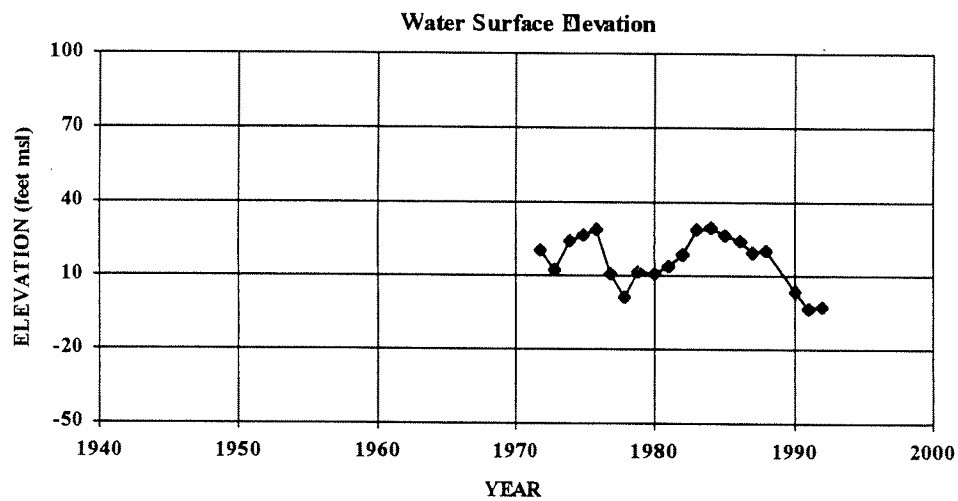
Use: IRRIGATION

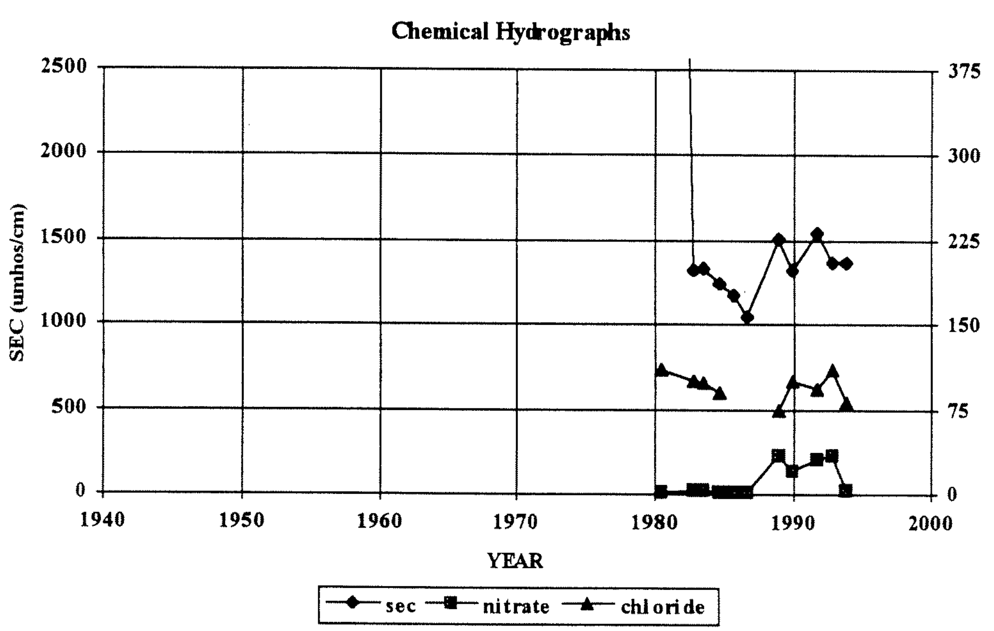
Ground Surface Elevation: 70

Perforation Rng Elevations: -35 - -127

Depth: 200

Perforation Range: 105 - 197





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/03E-08C01

Area: PAJARO-SPRINGFIELD

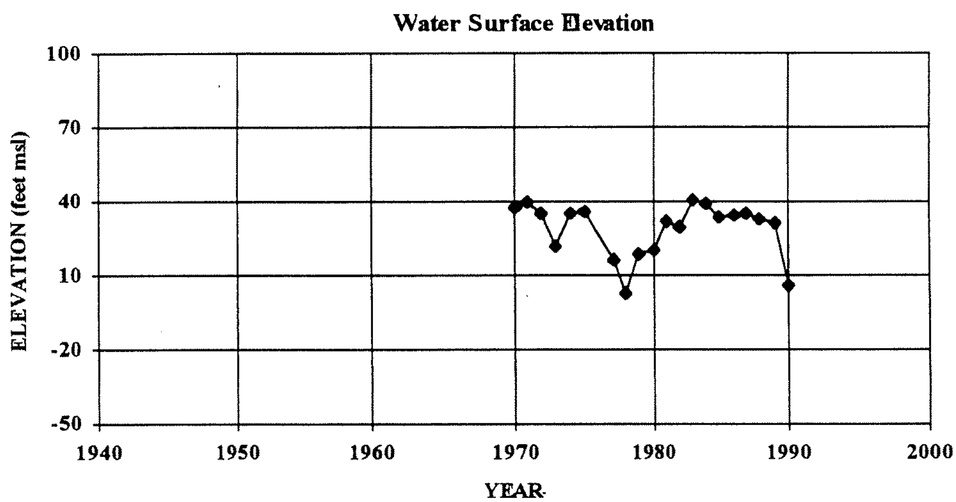
Use: IRRIGATION

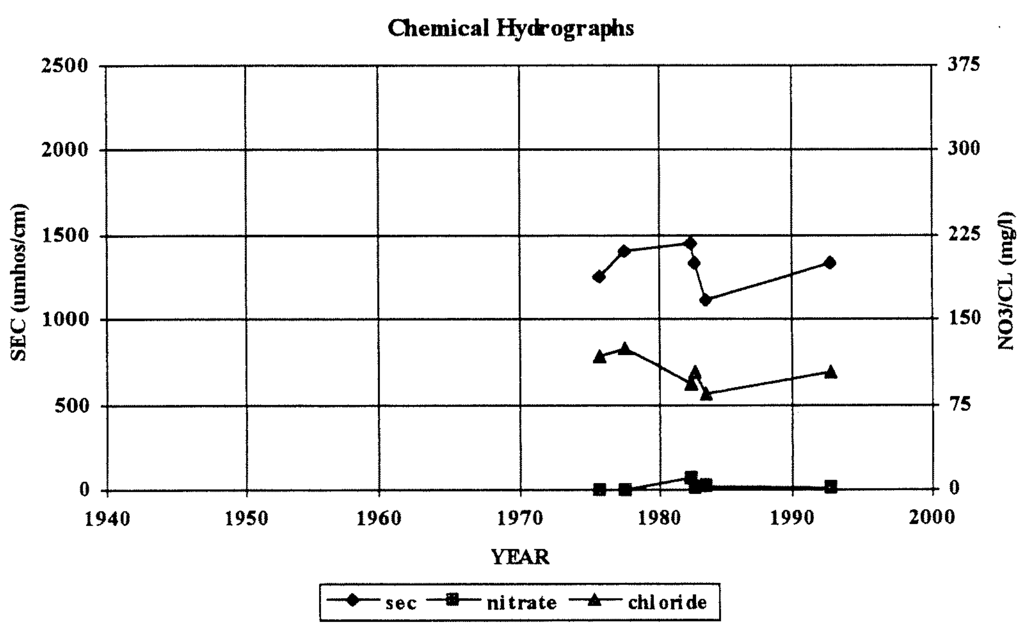
Ground Surface Elevation: 60

Perforation Rng Elevations: - No Data

Depth: 230

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/03E-08M01

Area: PAJARO-SPRINGFIELD

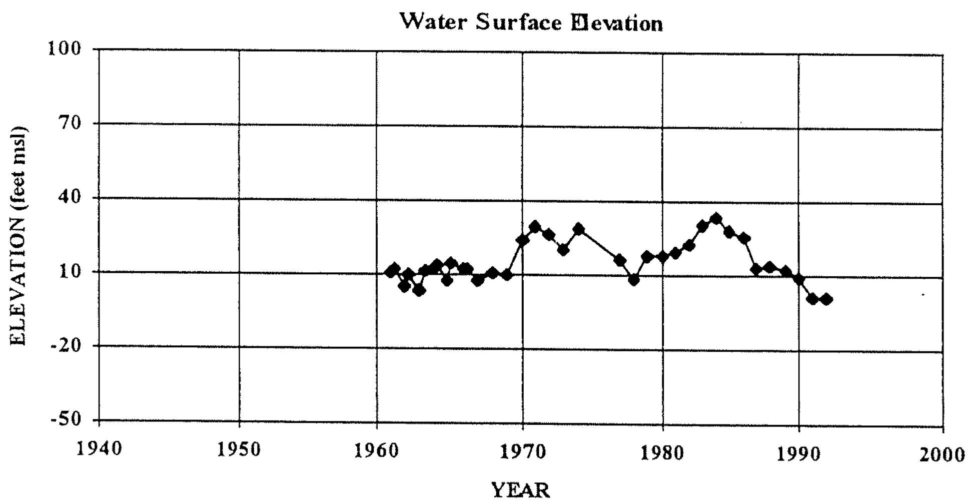
Use: IRRIGATION

Ground Surface Elevation: 76.5

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data



North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/03E-16C02

Area: PAJARO-SPRINGFIELD

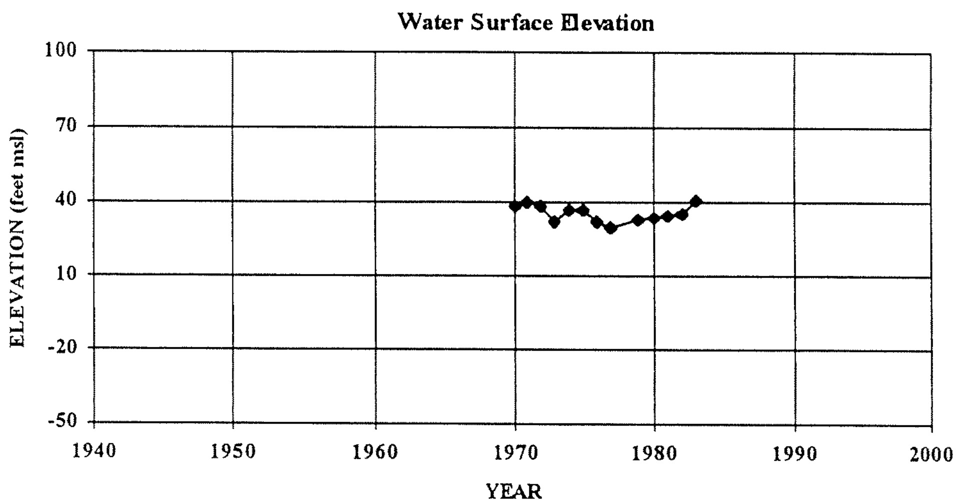
Use: IRRIGATION

Ground Surface Elevation: 90

Perforation Rng Elevations: -210 - -282

Depth: 385

Perforation Range: 300 - 372



North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/03E-18D01

Area: PAJARO-SPRINGFIELD

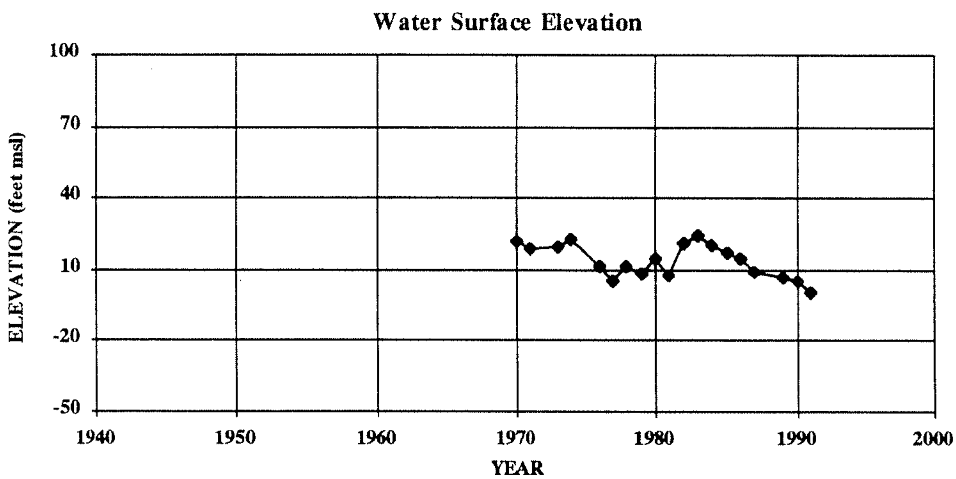
Use: DOMESTIC

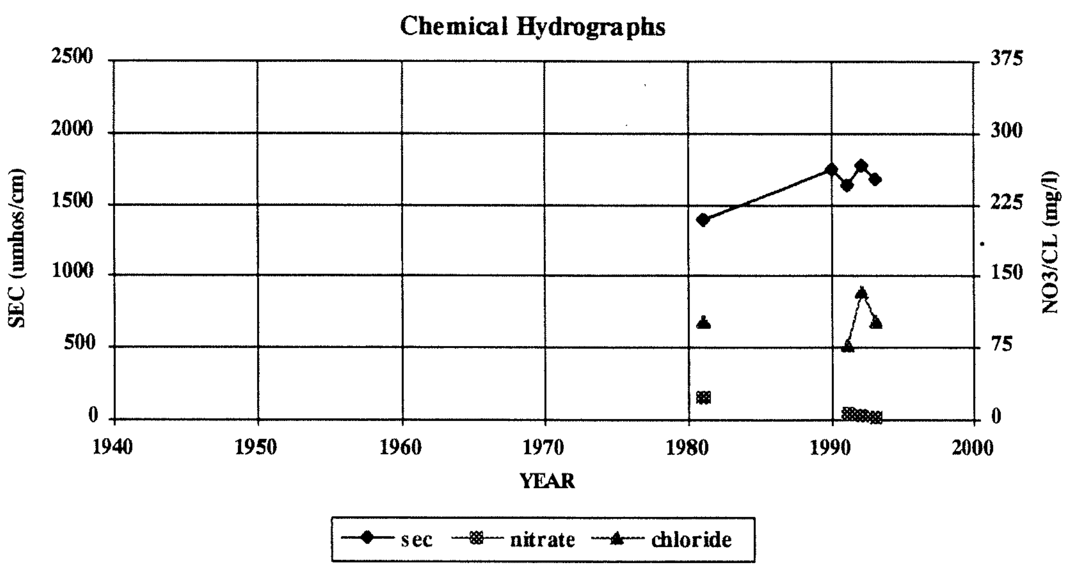
Ground Surface Elevation: 60.5

Perforation Rng Elevations -64.5 - -99.5

Depth: 172

Perforation Range: 125 - 160





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/03E-18E04

Area: PAJARO-SPRINGFIELD

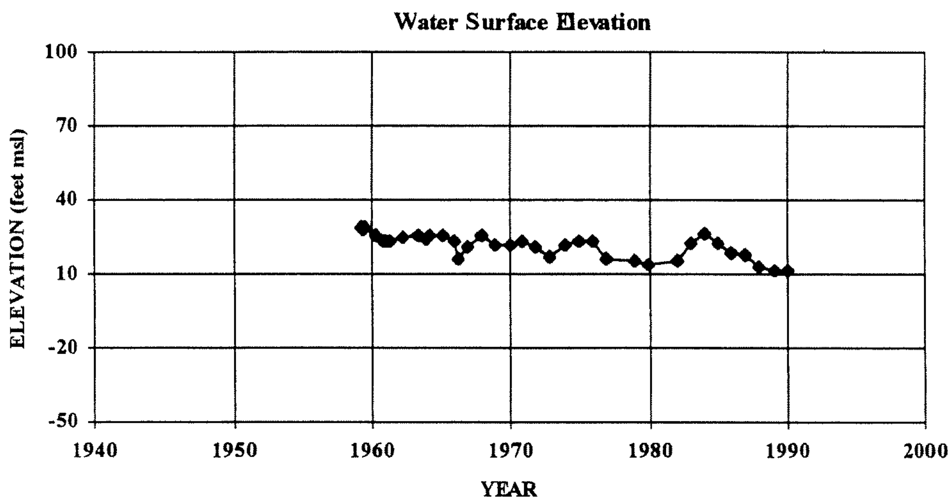
Use: DOMESTIC

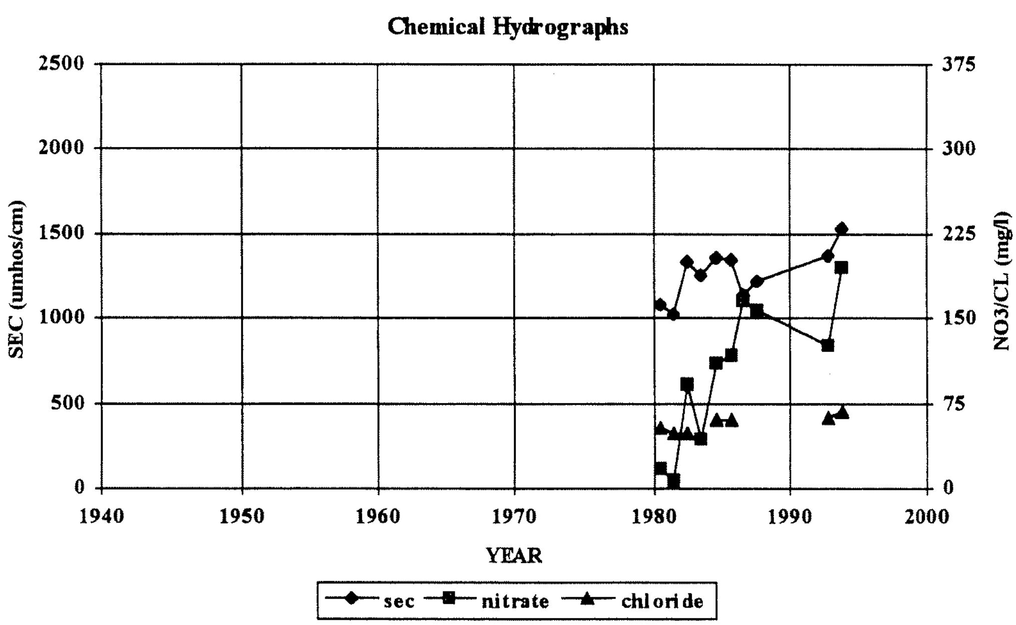
Ground Surface Elevation: 60.5

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 12S/03E-21B01

Area: PAJARO-SPRINGFIELD

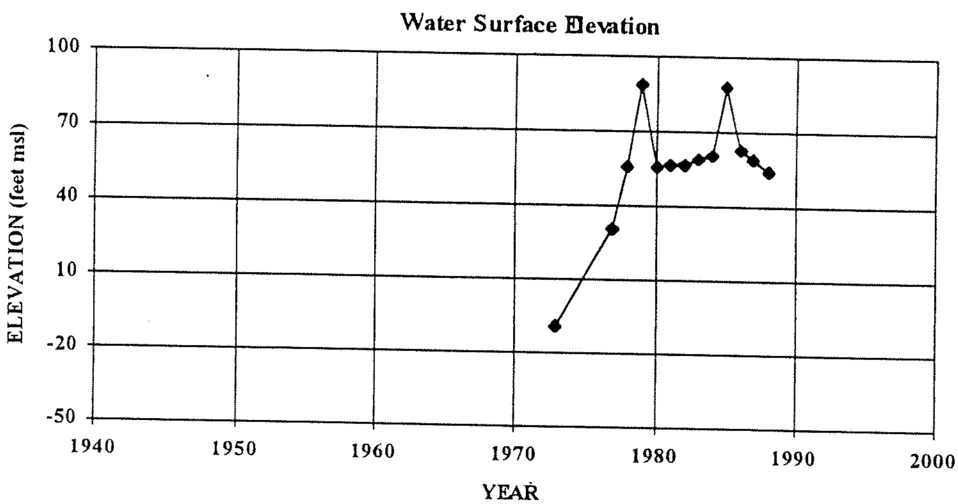
Use: INDUSTRIAL

Ground Surface Elevation: 390.5

Perforation Rng Elevations: 68.5 - -51.5

Depth: 450

Perforation Range: 322 - 442



North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-04F01

Area: PAJARO-SPRINGFIELD

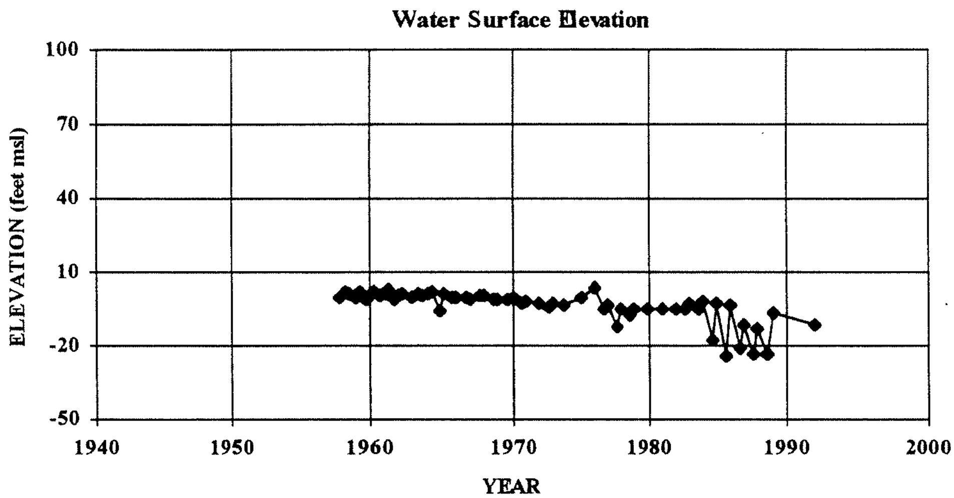
Use: IRRIGATION

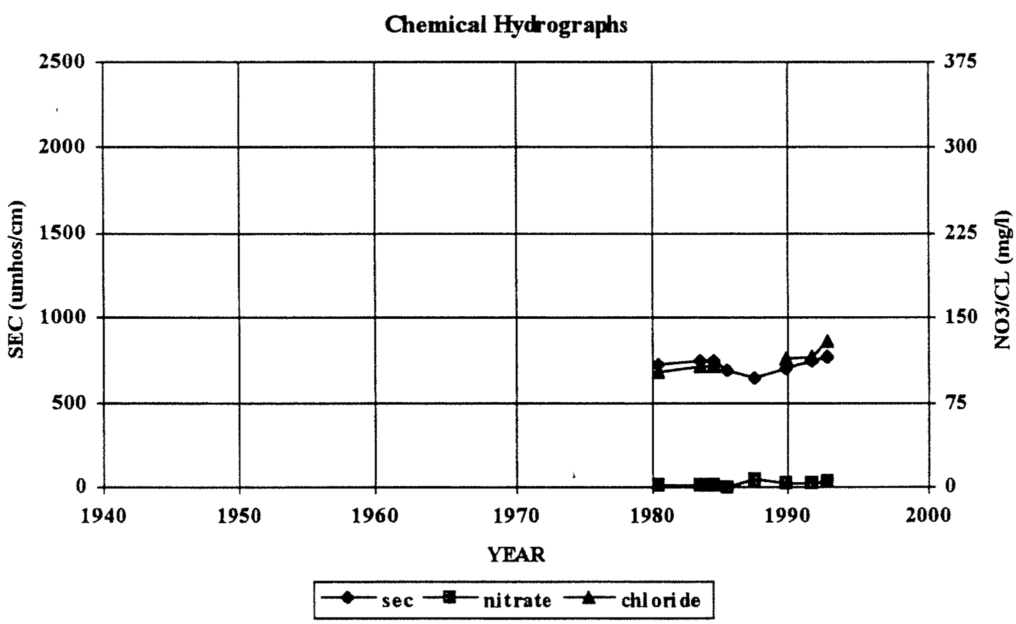
Ground Surface Elevation: 115.3

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-04K01

Area: PAJARO-SPRINGFIELD

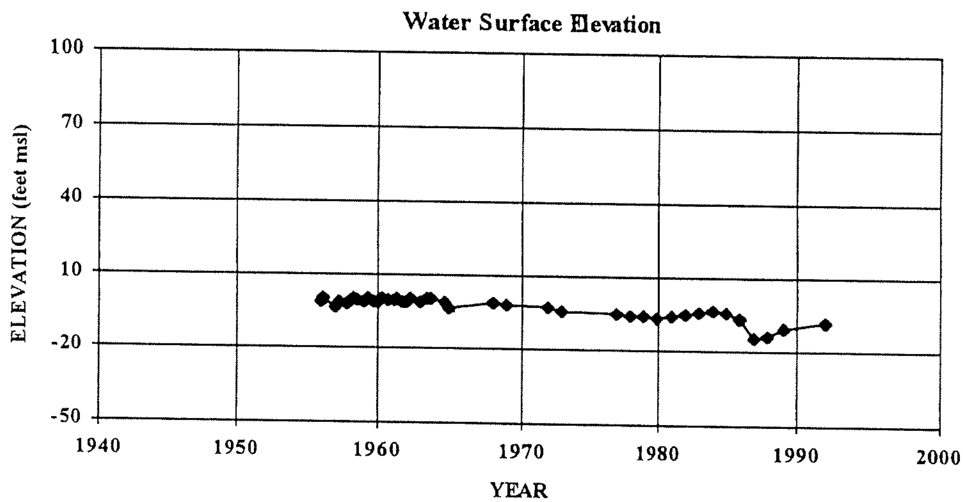
Use: IRRIGATION

Ground Surface Elevation: 103.8

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data



North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-05C02

Area: PAJARO-SPRINGFIELD

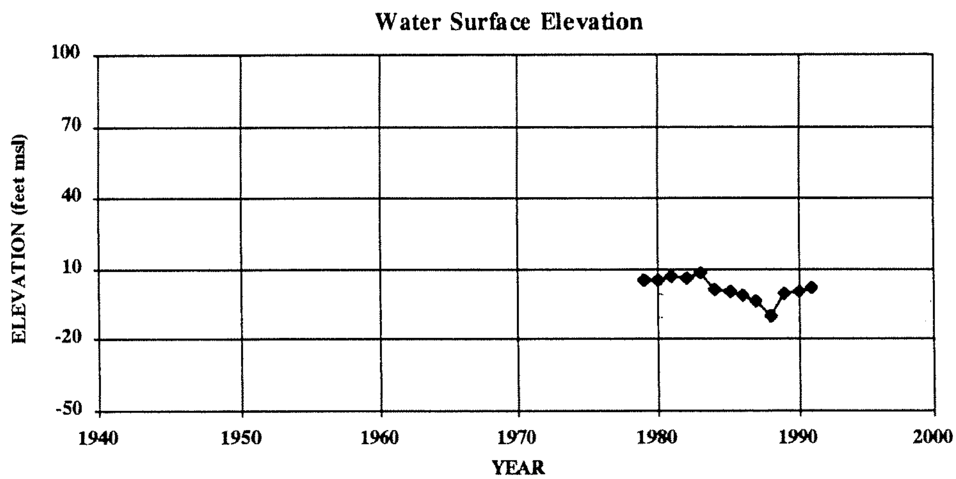
Use: IRRIGATION

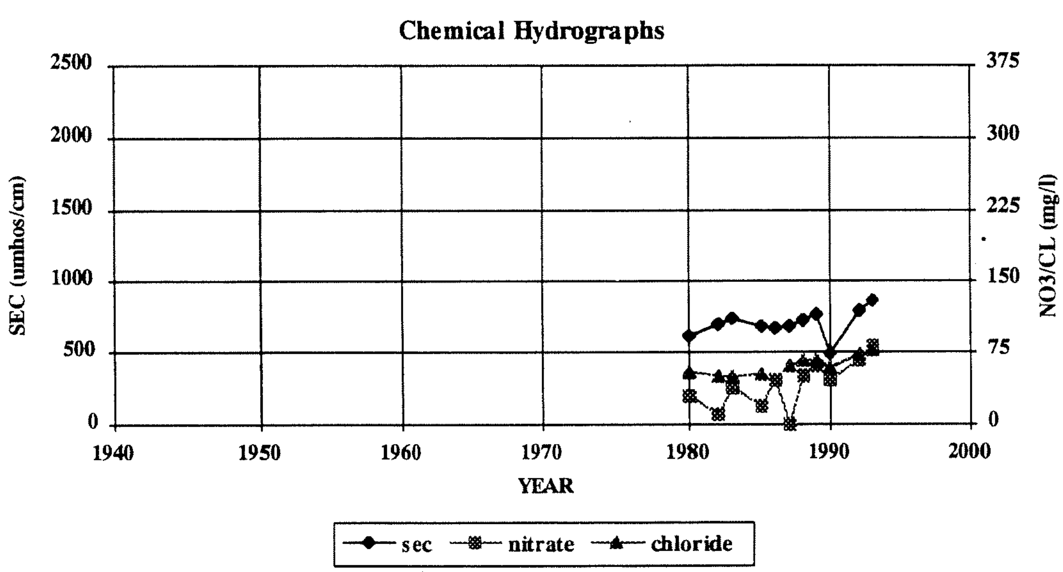
Ground Surface Elevation: 76.3

Perforation Rng Elevations -91.7 - -307.7

Depth: 408

Perforation Range: 168 - 384





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-05M01

Area: PAJARO-SPRINGFIELD

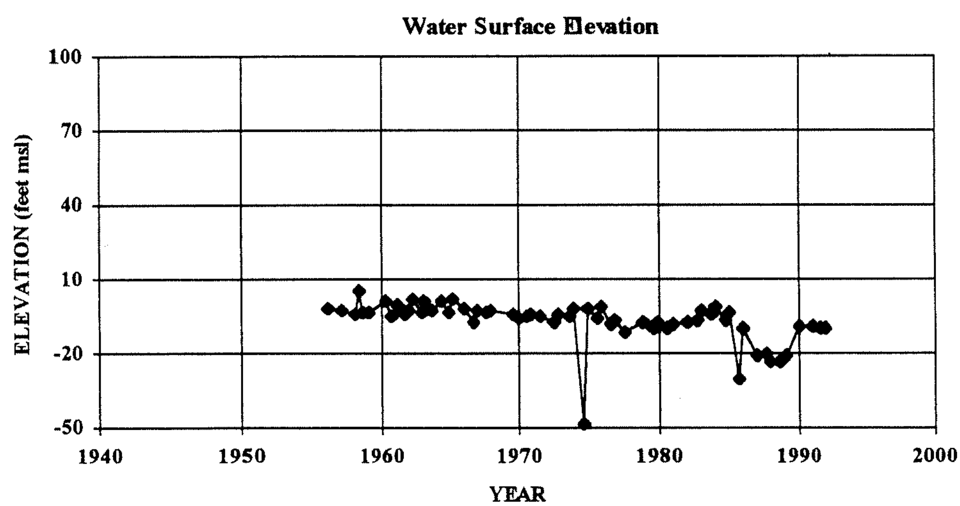
Use: IRRIGATION

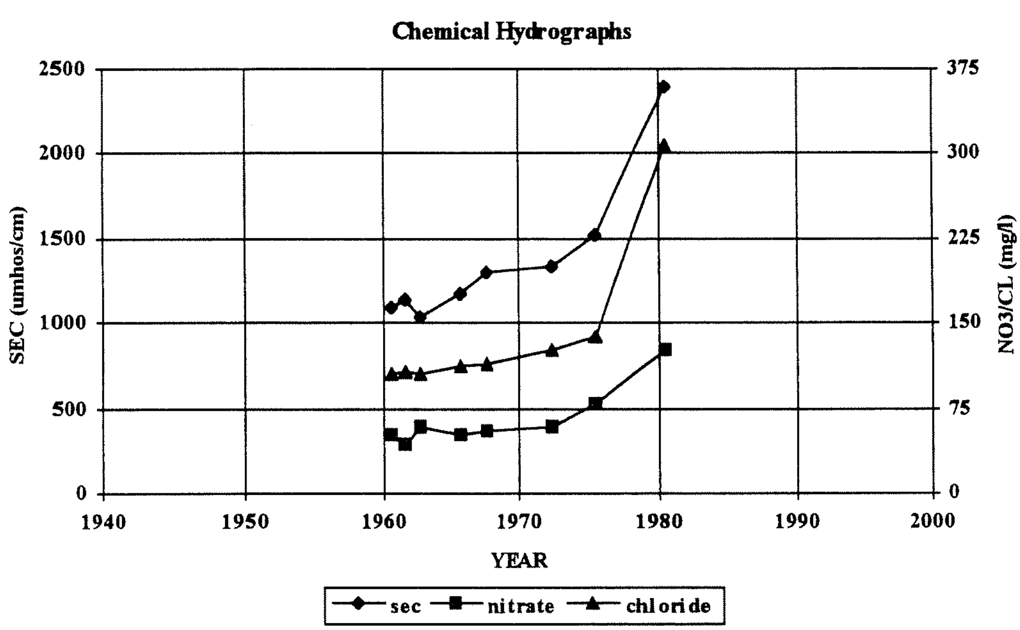
Ground Surface Elevation: 20.4

Perforation Rng Elevations: - No Data

Depth: 122

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-06C01

Area: PAJARO-SPRINGFIELD

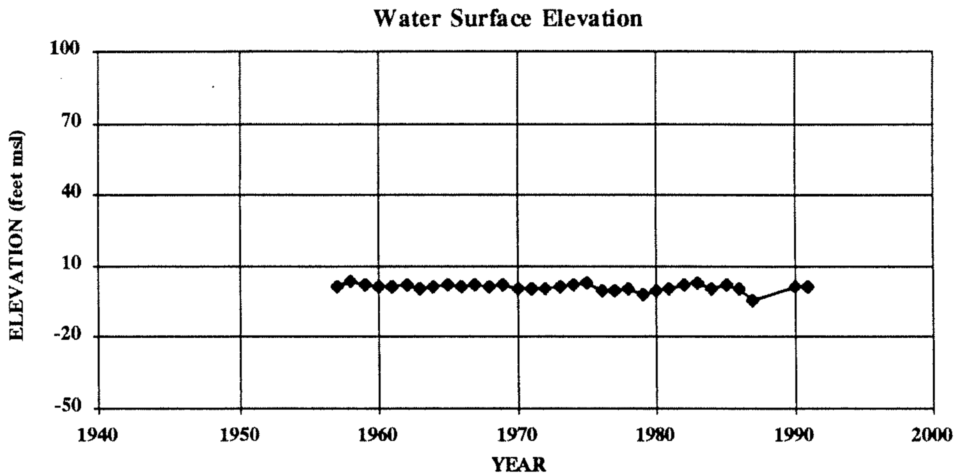
Use: Unclassified

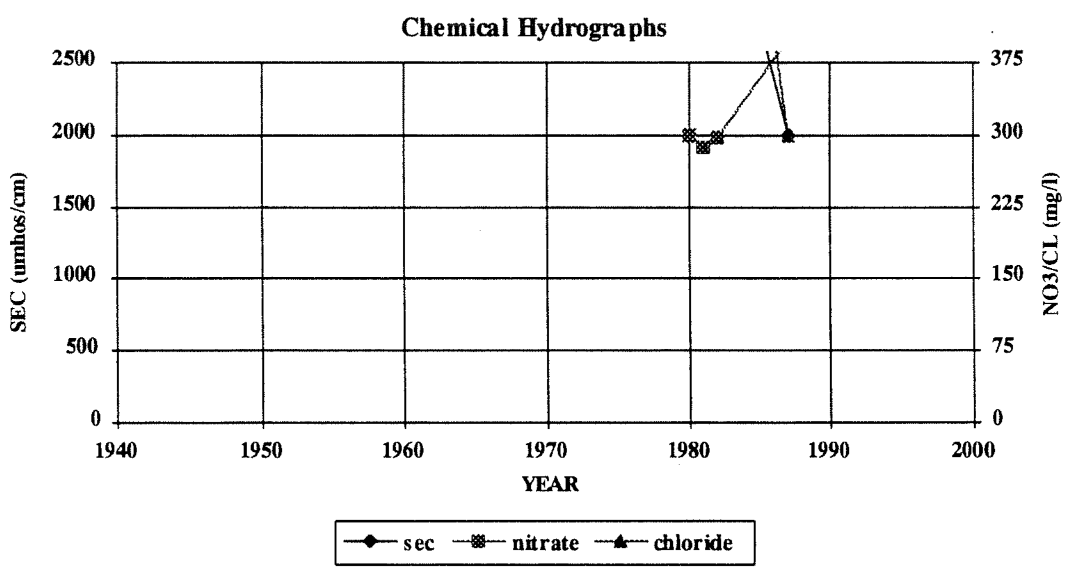
Ground Surface Elevation: 26

Perforation Rng Elevations -53 - -169

Depth: 198

Perforation Range: 79 - 195





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-06E02

Area: PAJARO-SPRINGFIELD

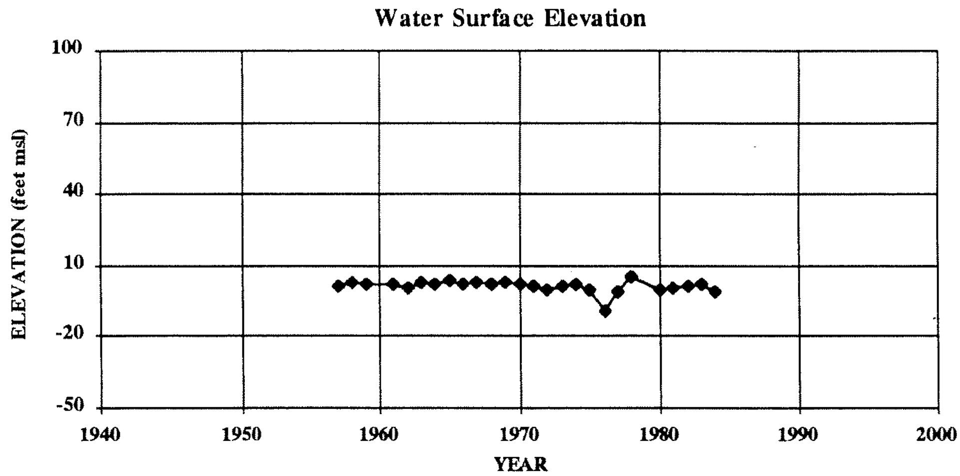
Use: Unclassified

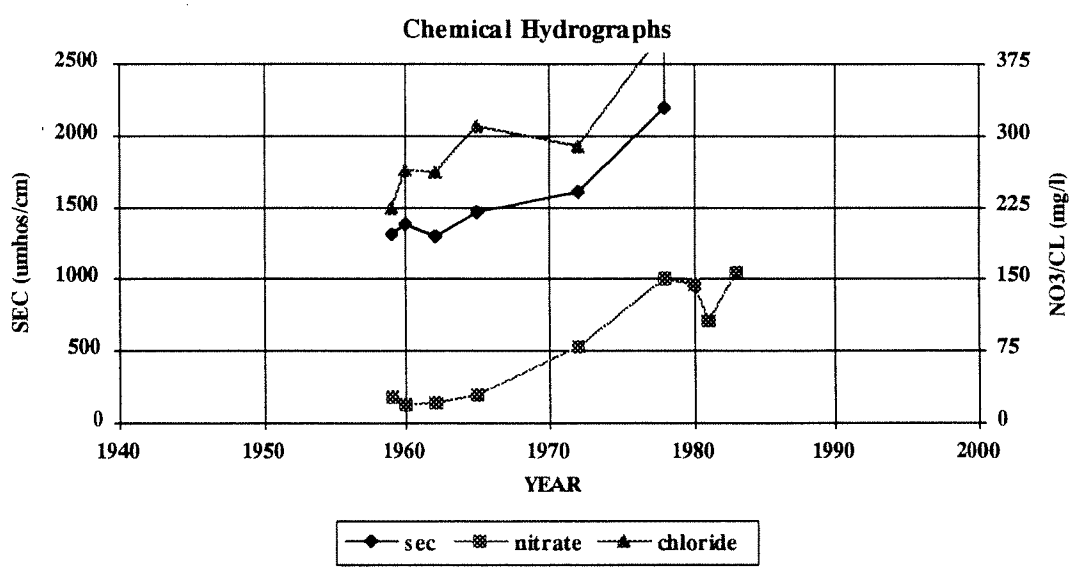
Ground Surface Elevation: 27.8

Perforation Rng Elevations -117.2 - -151.2

Depth: 198

Perforation Range: 145 - 179





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-06E03

Area: PAJARO-SPRINGFIELD

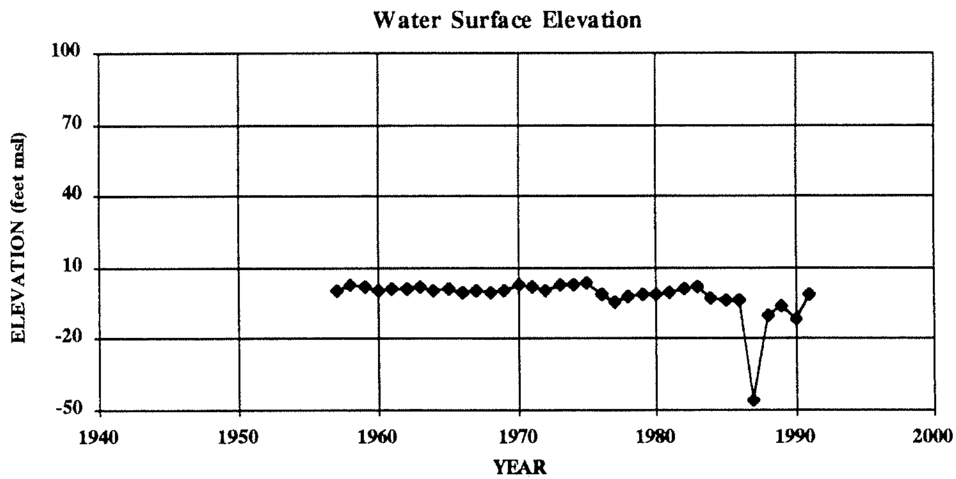
Use: IRRIGATION

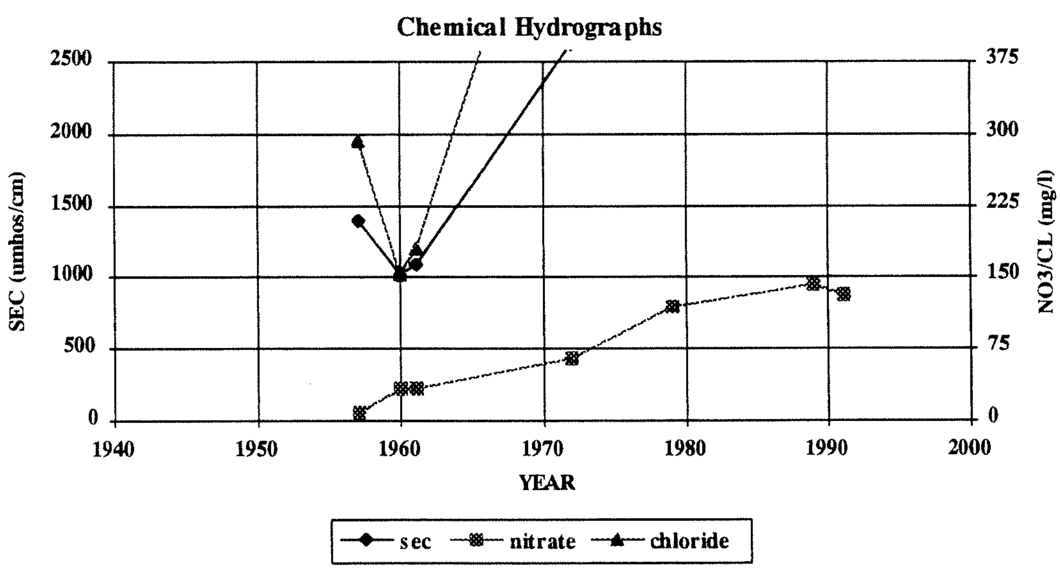
Ground Surface Elevation: 34.4

Perforation Rng Elevations -114.6 - -152.6

Depth: 192

Perforation Range: 149 - 187





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-06R01

Area: PAJARO-SPRINGFIELD

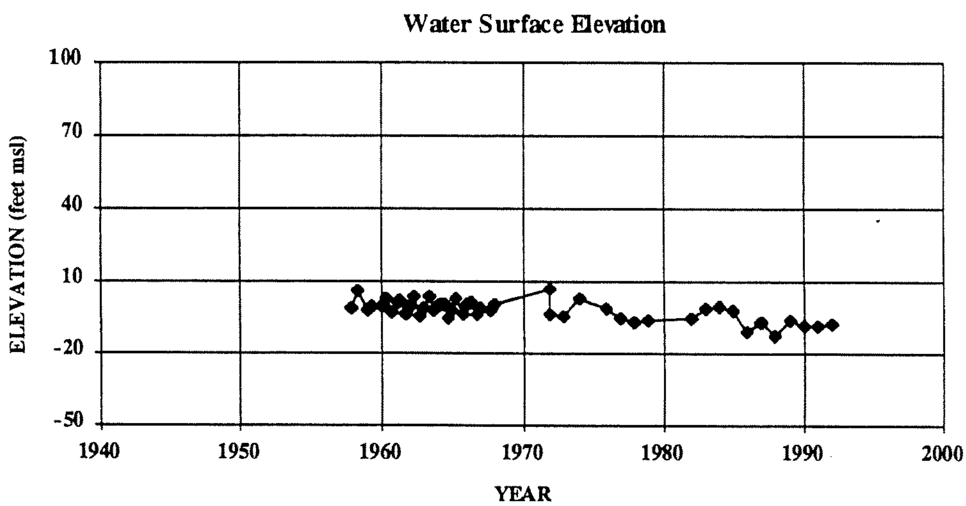
Use: IRRIGATION

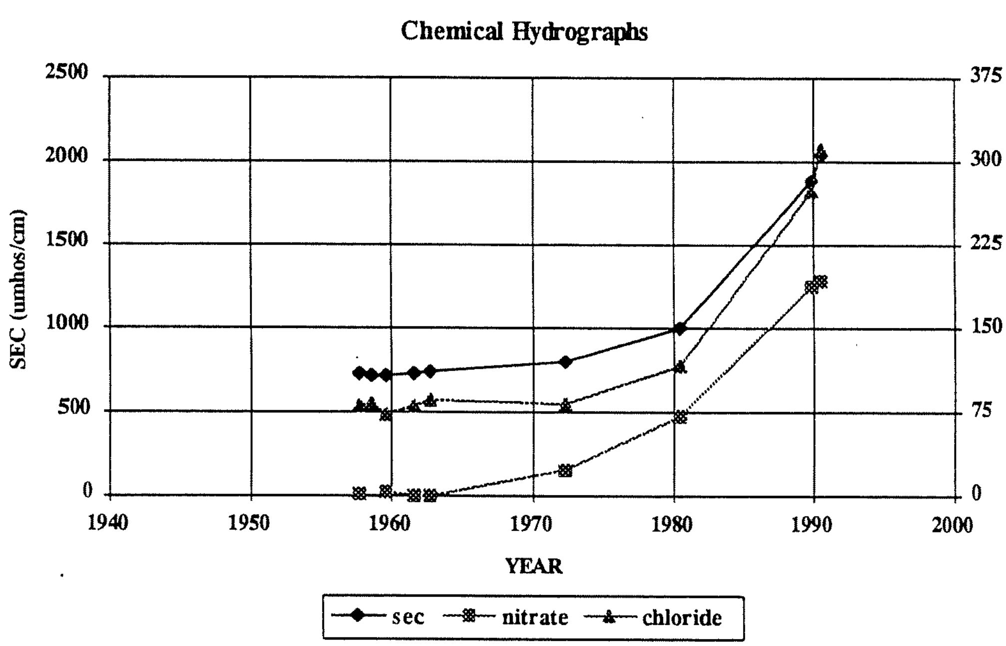
Ground Surface Elevation: 25.4

Perforation Rng Elevations -24.6 - -94.6

Depth: 120

Perforation Range: 50 - 120





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-27L01

Area: PRESSURE 180

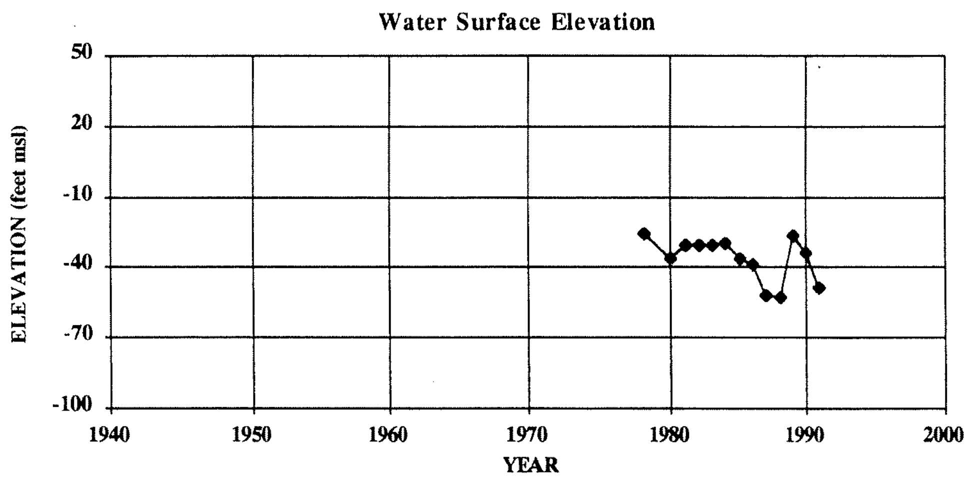
Use: IRRIGATION

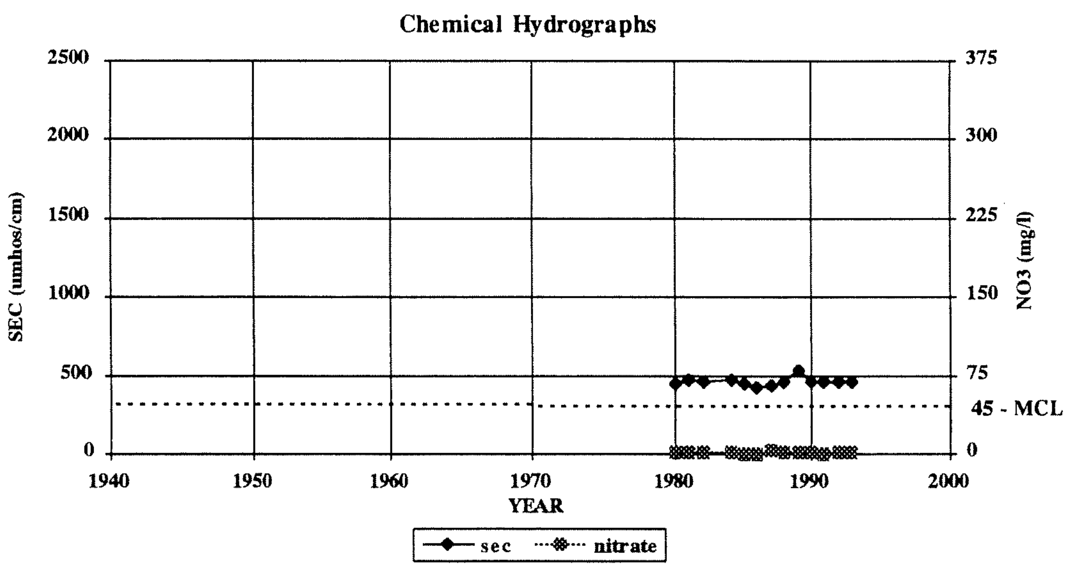
Ground Surface Elevation: 50.5

Perforation Rng Elevations -173.5 - -317.5

Depth: 388

Perforation Range: 224 - 368





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-28M01

Area: PRESSURE 180

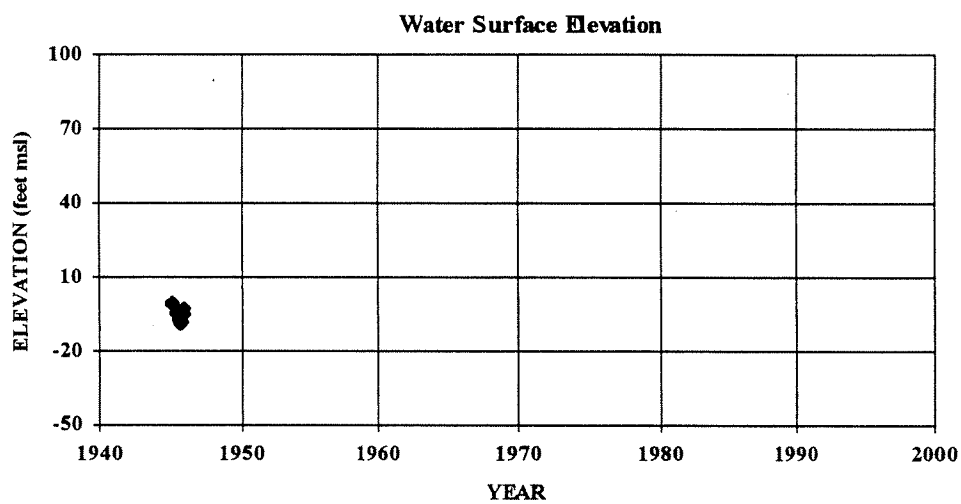
Use: IRRIGATION

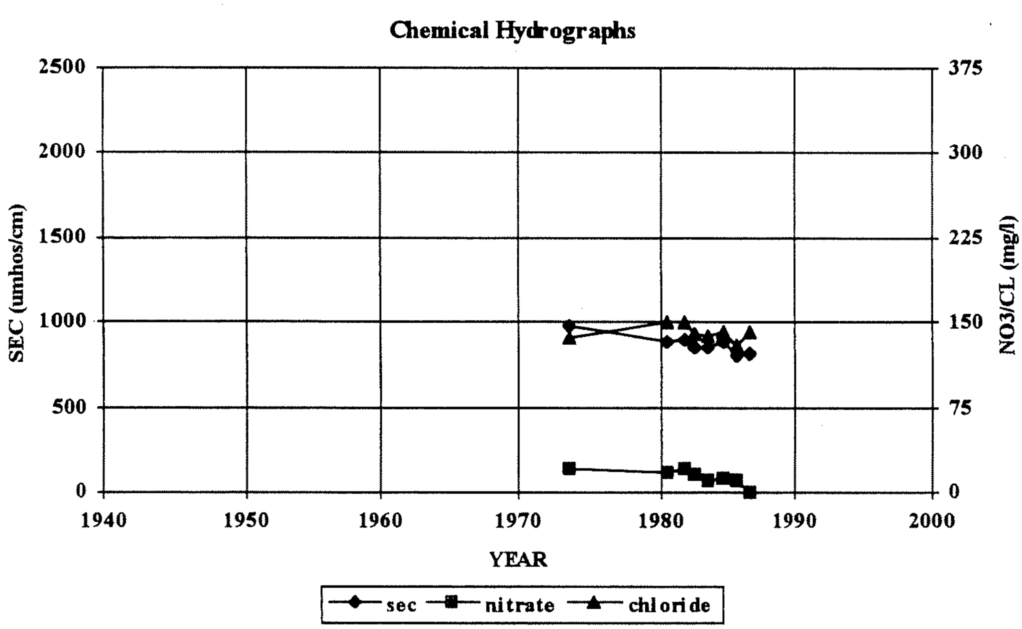
Ground Surface Elevation: 4.2

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-29R01

Area: PRESSURE 180

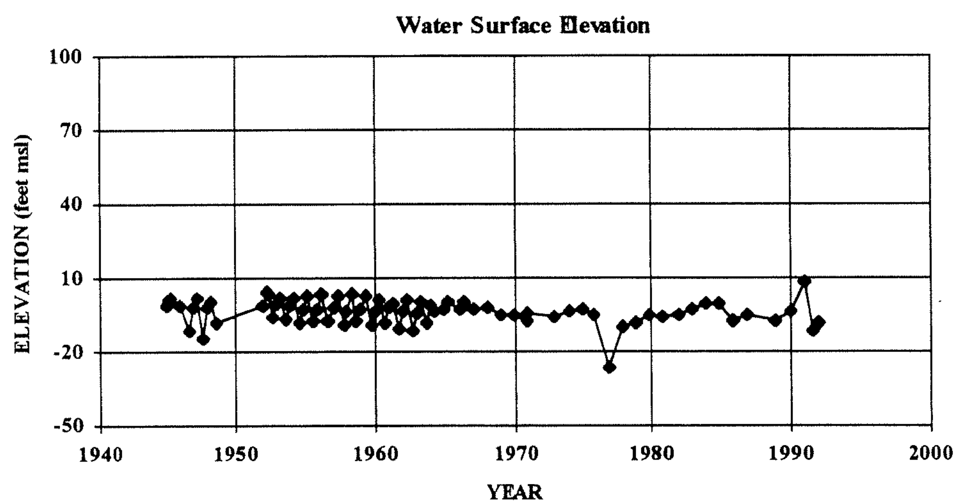
Use: IRRIGATION

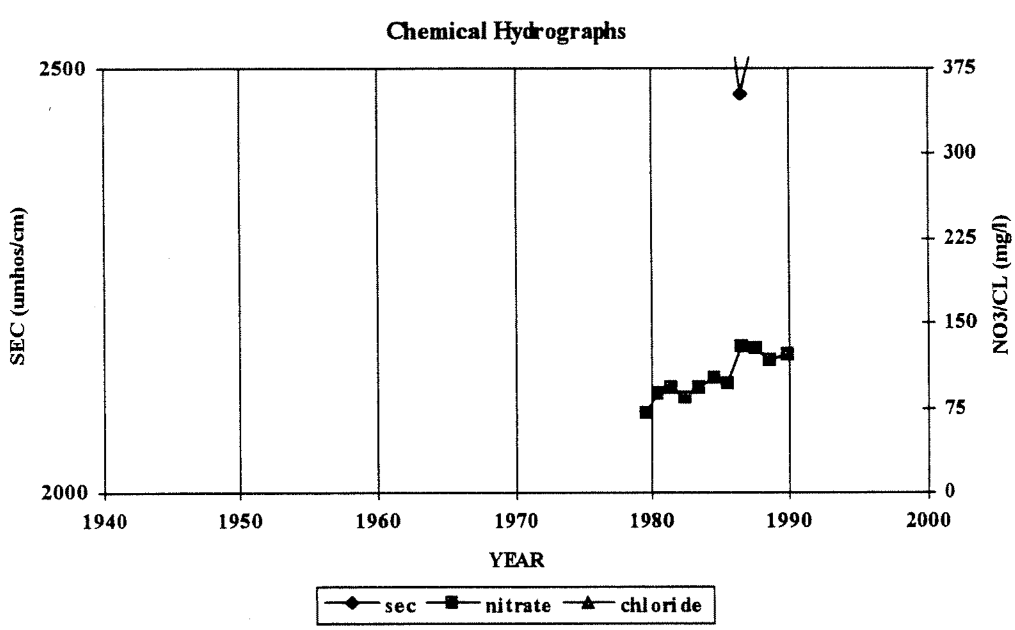
Ground Surface Elevation: 9.8

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-33E01

Area: PRESSURE 180

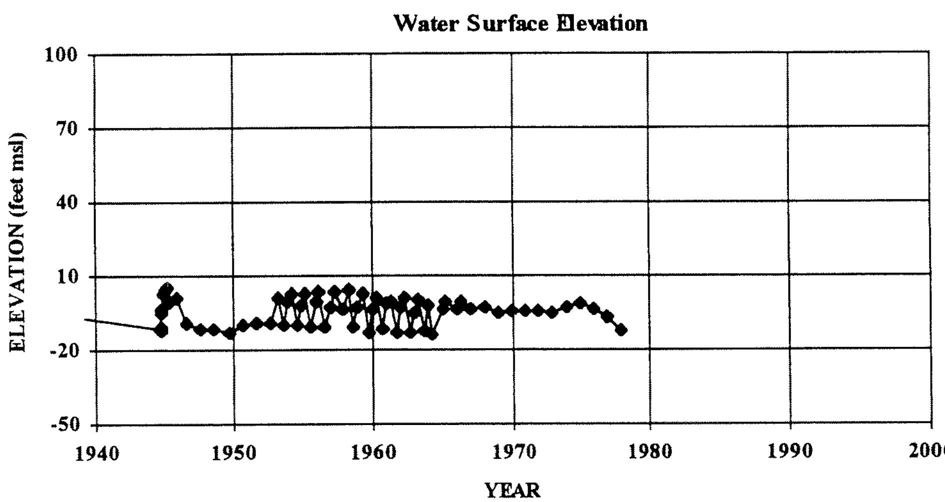
Use: IRRIGATION

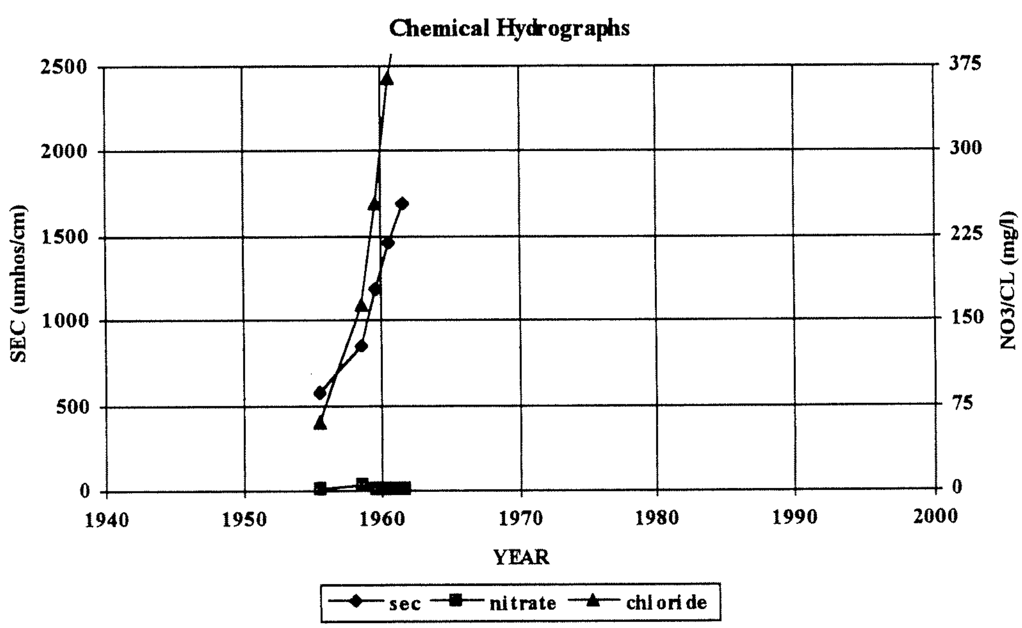
Ground Surface Elevation: 8.8

Perforation Rng Elevations: - No Data

Depth: 209

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-35L01

Area: PRESSURE 180

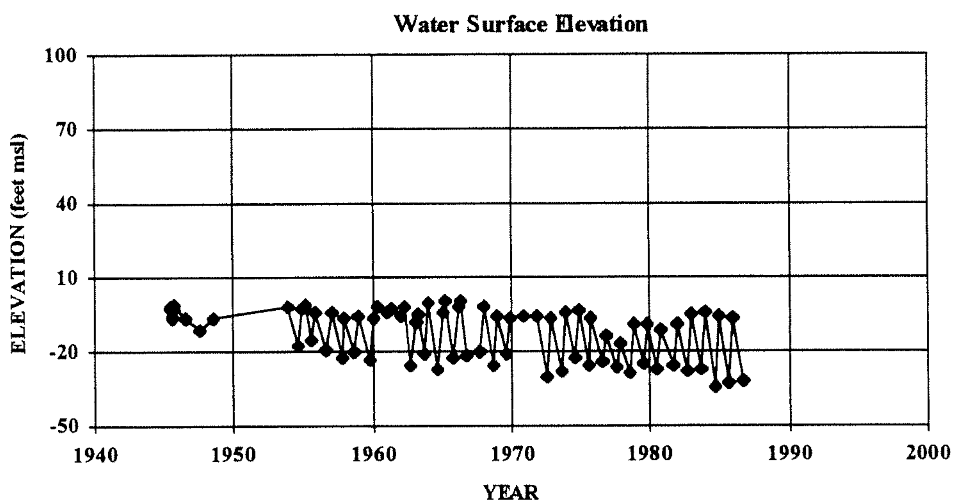
Use: Unclassified

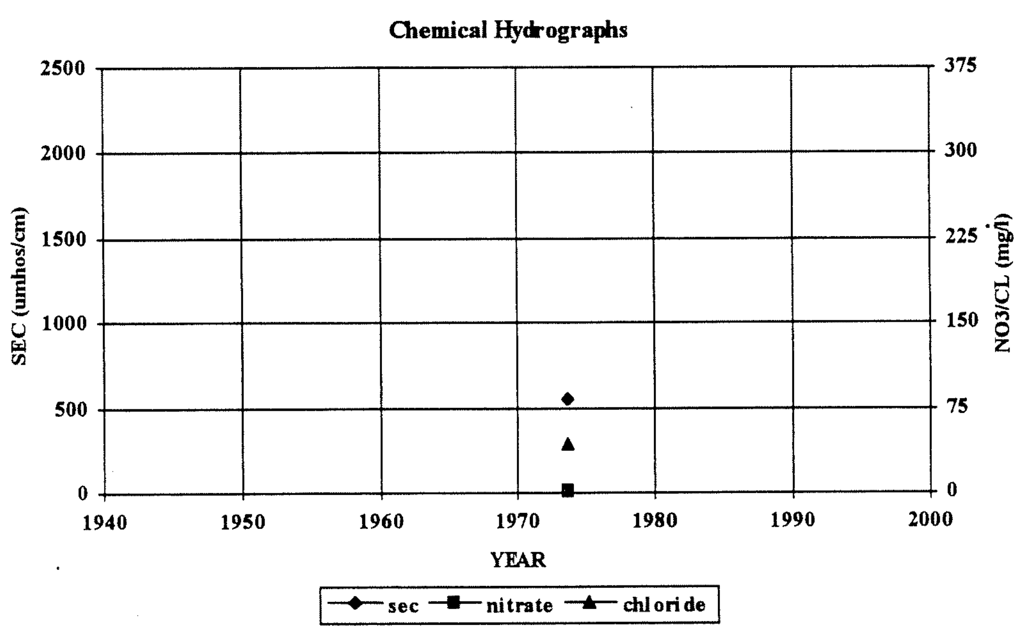
Ground Surface Elevation: 1

Perforation Rng Elevations: - No Data

Depth: 575

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-03F01

Area: PRESSURE 180

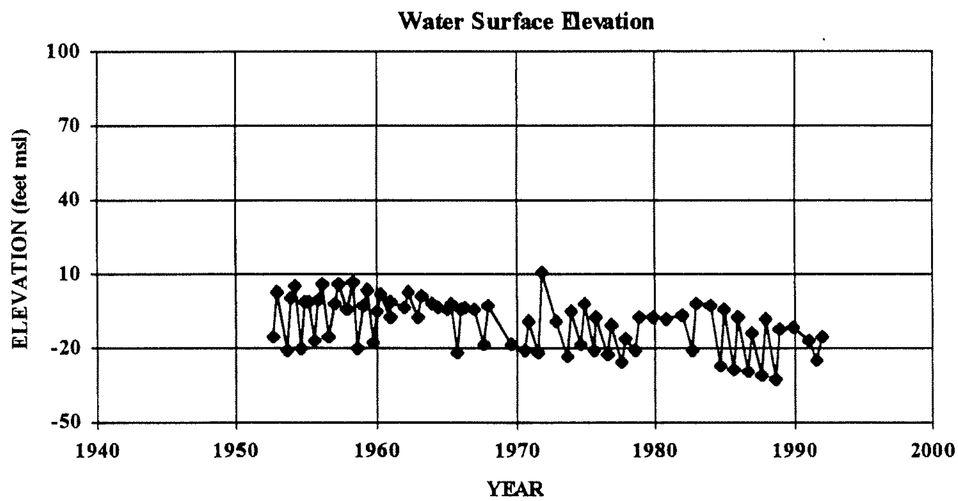
Use: IRRIGATION

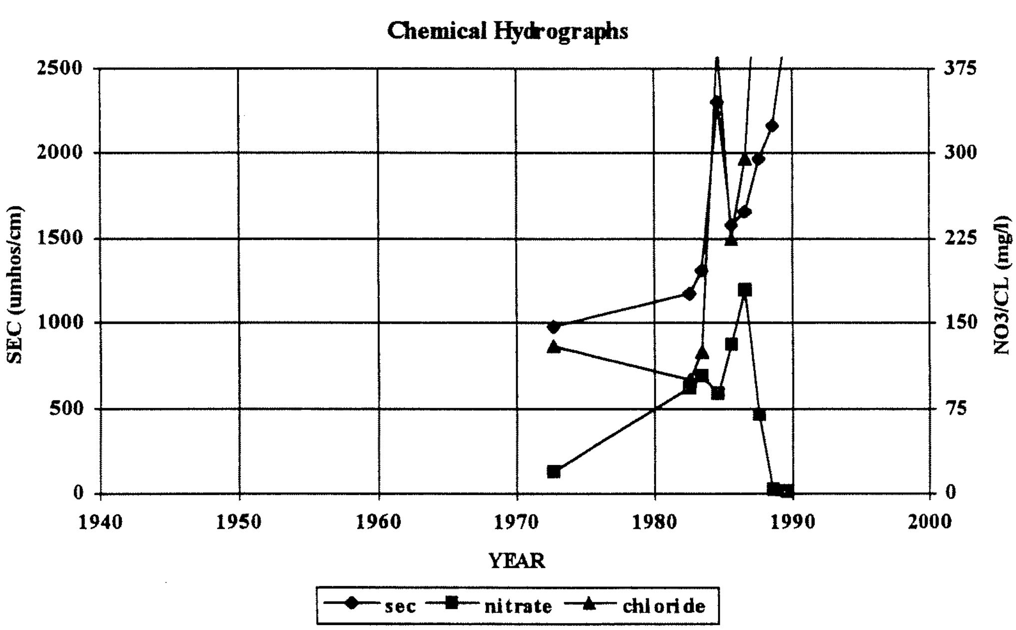
Ground Surface Elevation: 14.3

Perforation Rng Elevations: - No Data

Depth: 175

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-03K01

Area: PRESSURE 180

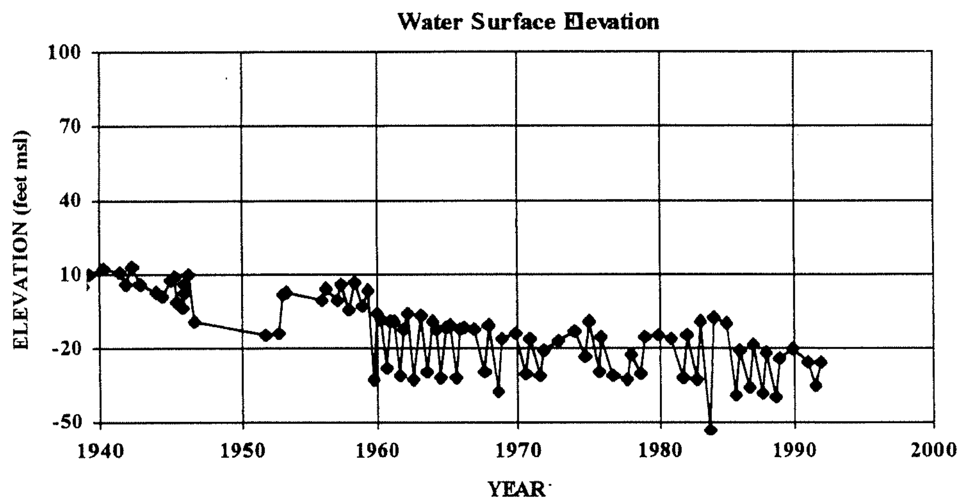
Use: IRRIGATION

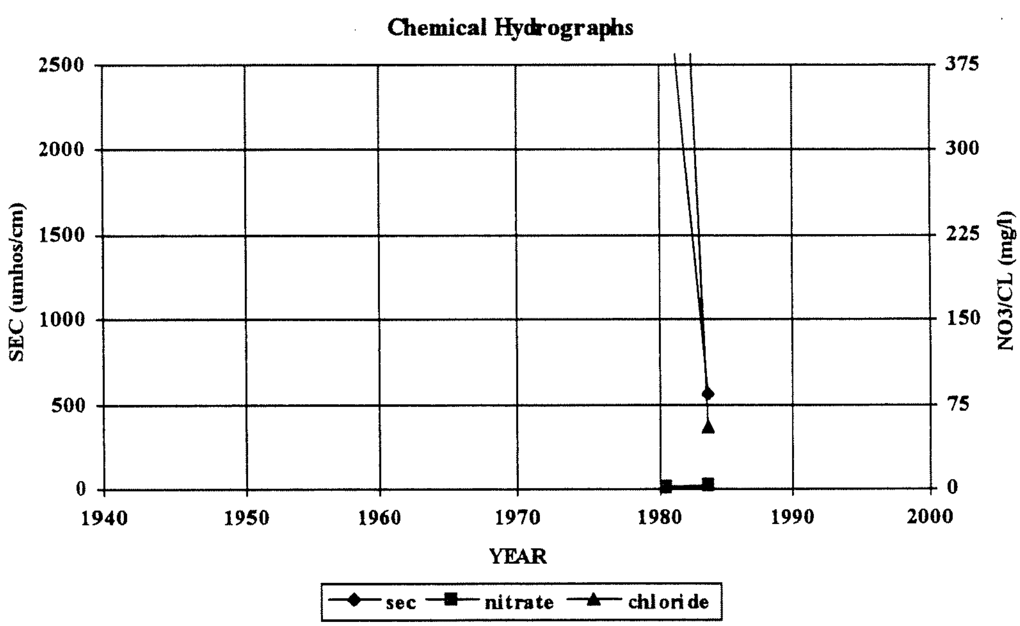
Ground Surface Elevation: 29

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-03R01

Area: PRESSURE 180

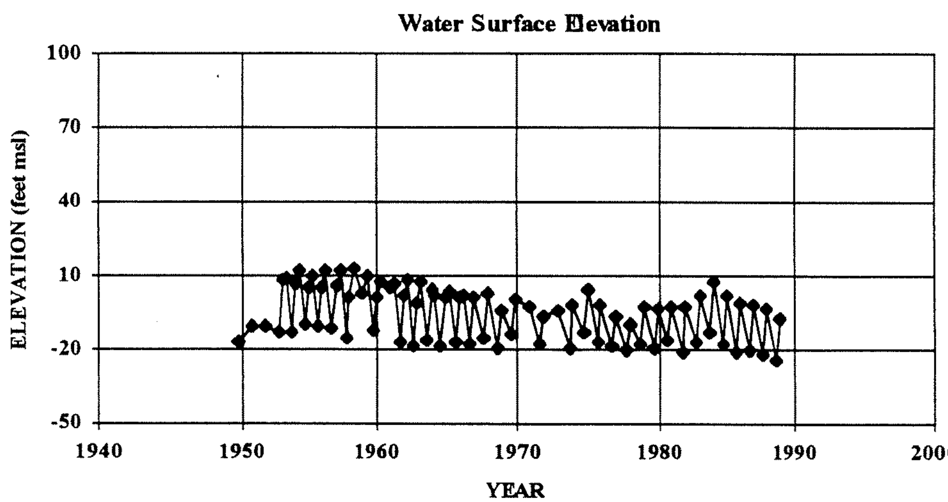
Use: IRRIGATION

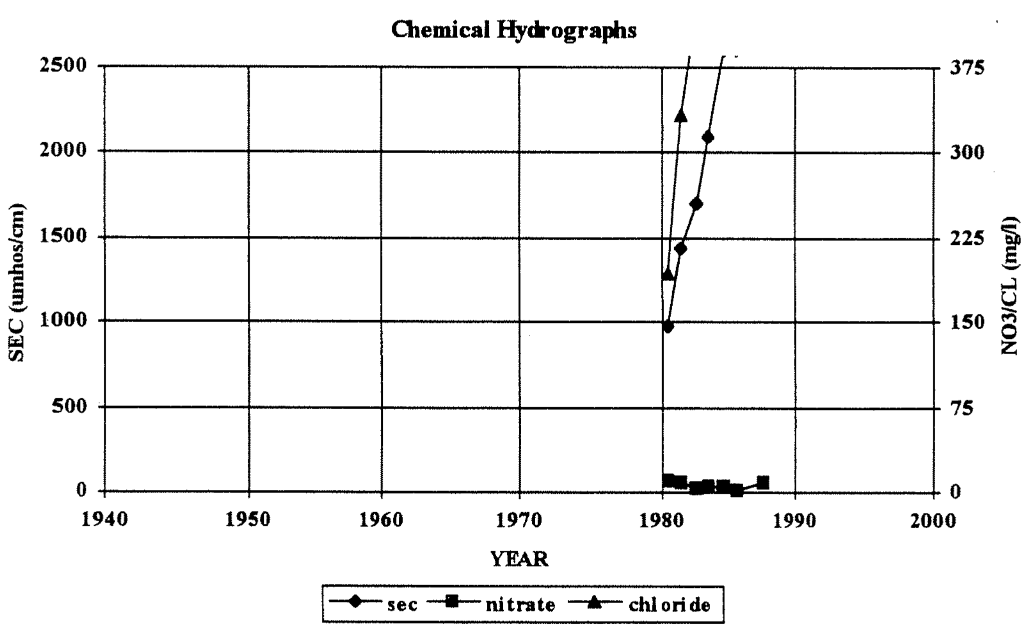
Ground Surface Elevation: 16.5

Perforation Rng Elevations: - No Data

Depth: 193

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-05R02

Area: PRESSURE 180

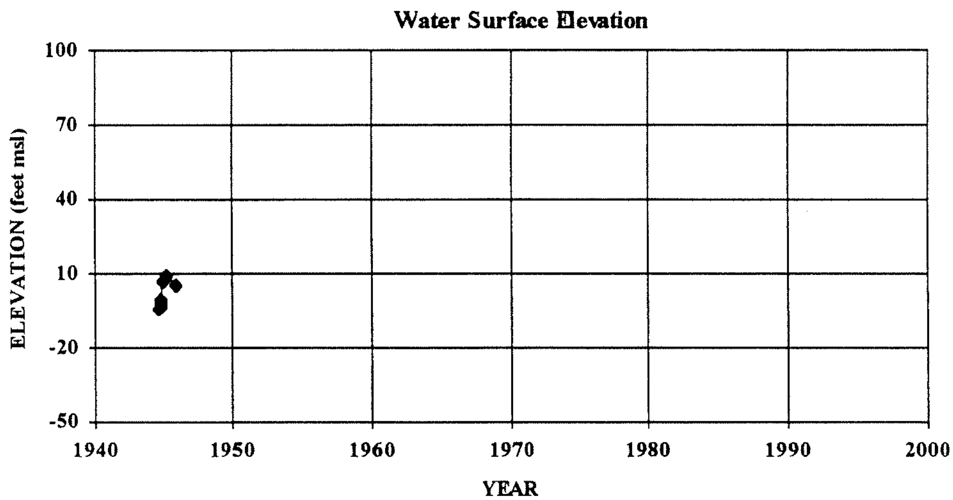
Use: Unclassified

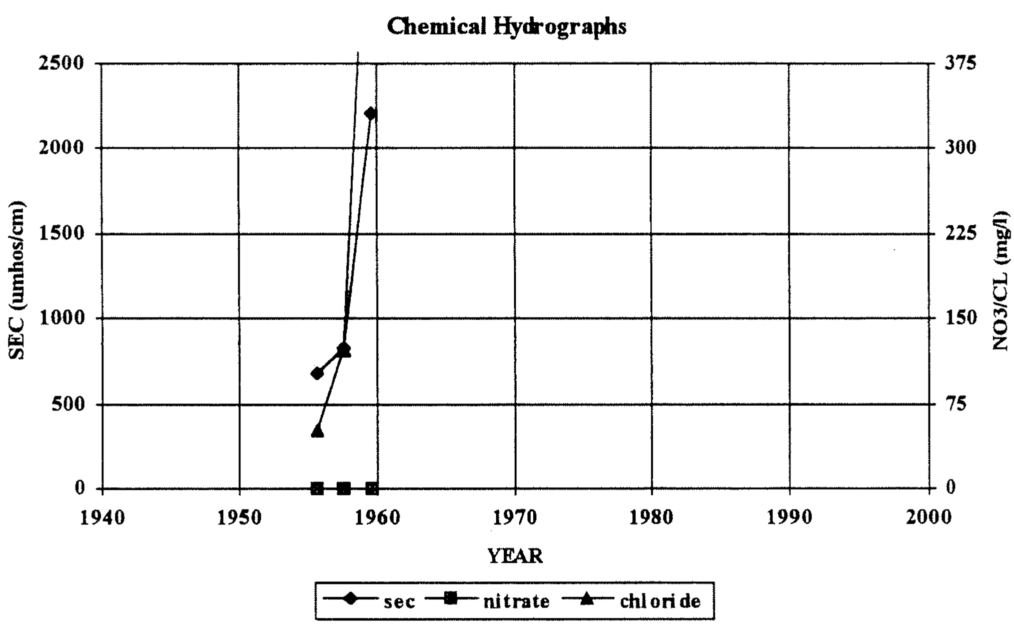
Ground Surface Elevation: No Data

Perforation Rng Elevations: - No Data

Depth: 209

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-19R01

Area: PRESSURE 400

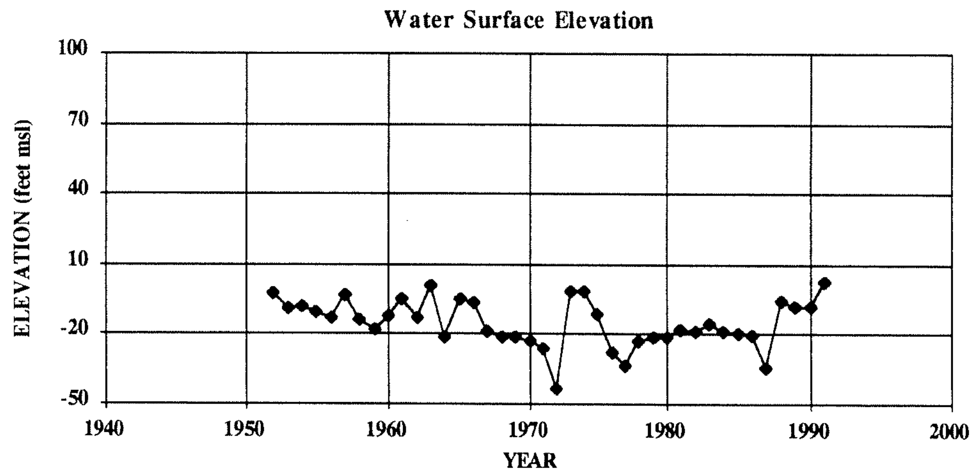
Use: IRRIGATION

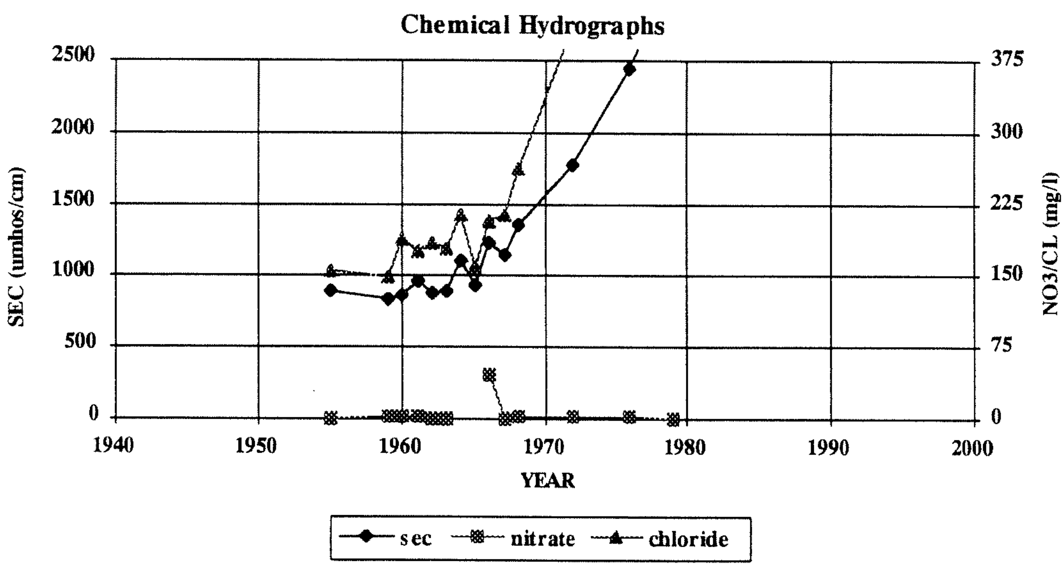
Ground Surface Elevation: 13.2

Perforation Rng Elevations -340.8 - -494.8

Depth: 508

Perforation Range: 354 - 508





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-19H01

Area: PRESSURE 400

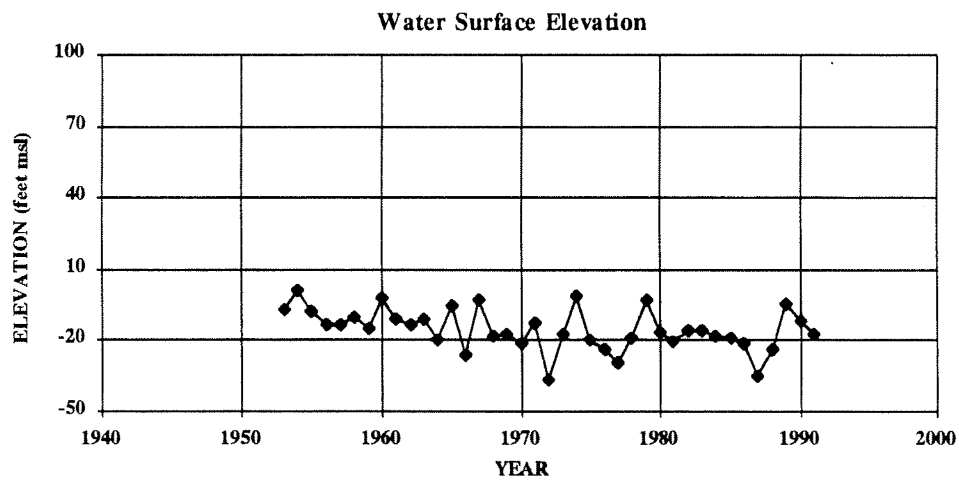
Use: IRRIGATION

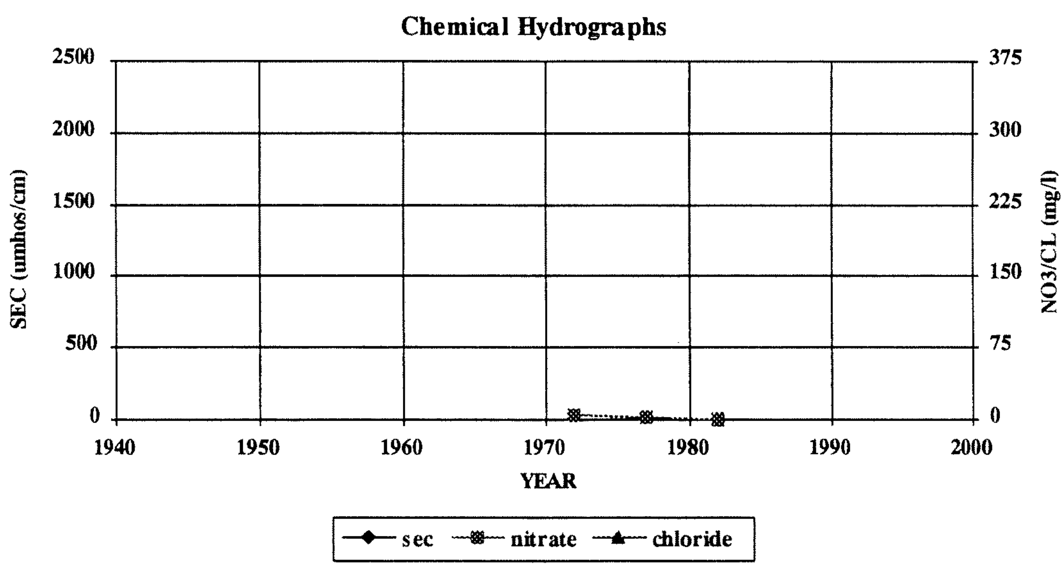
Ground Surface Elevation: 21.1

Perforation Rng Elevations -206.9 - -306.9

Depth: 340

Perforation Range: 228 - 328





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-20J01

Area: PRESSURE 400

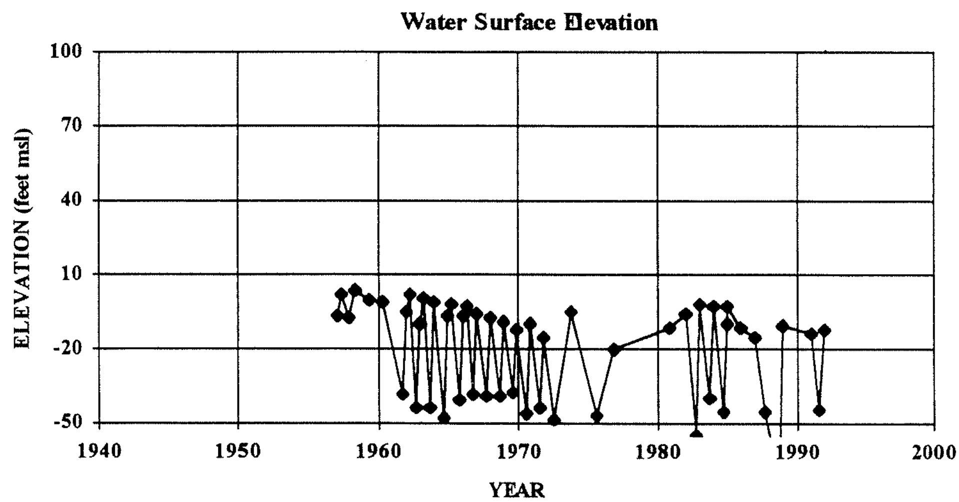
Use: IRRIGATION

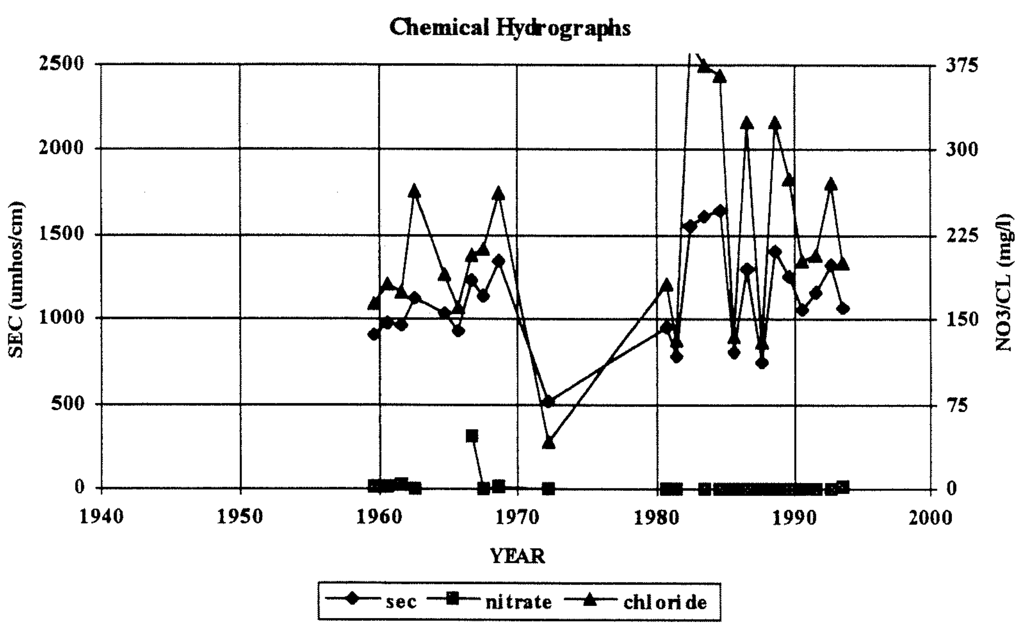
Ground Surface Elevation: 15.3

Perforation Rng Elevations: - No Data

Depth: 600

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-27M01

Area: PRESSURE 400

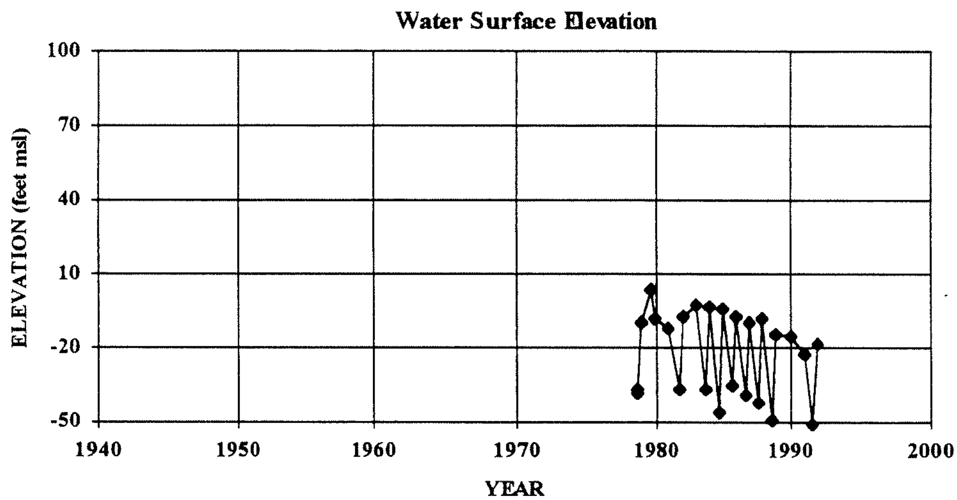
Use: IRRIGATION

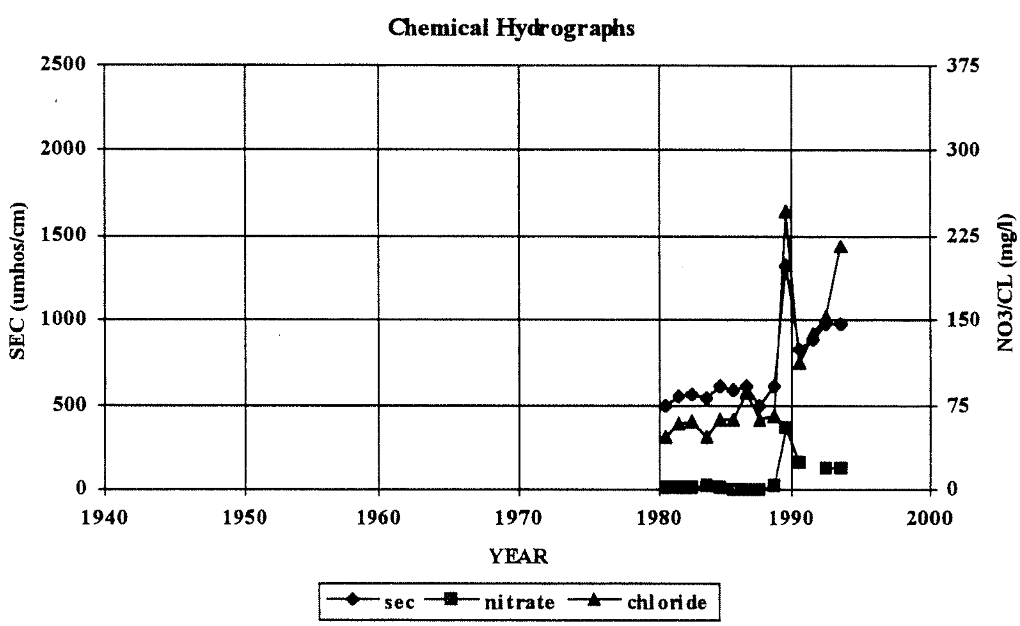
Ground Surface Elevation: 16.2

Perforation Rng Elevations: -191.8 - -611.8

Depth: 680

Perforation Range: 208 - 628





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-20M02

Area: PRESSURE 400

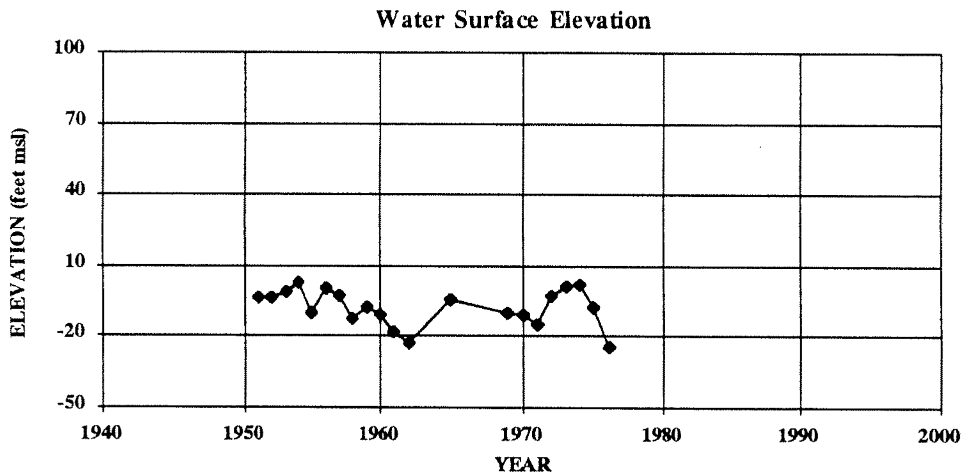
Use: IRRIGATION

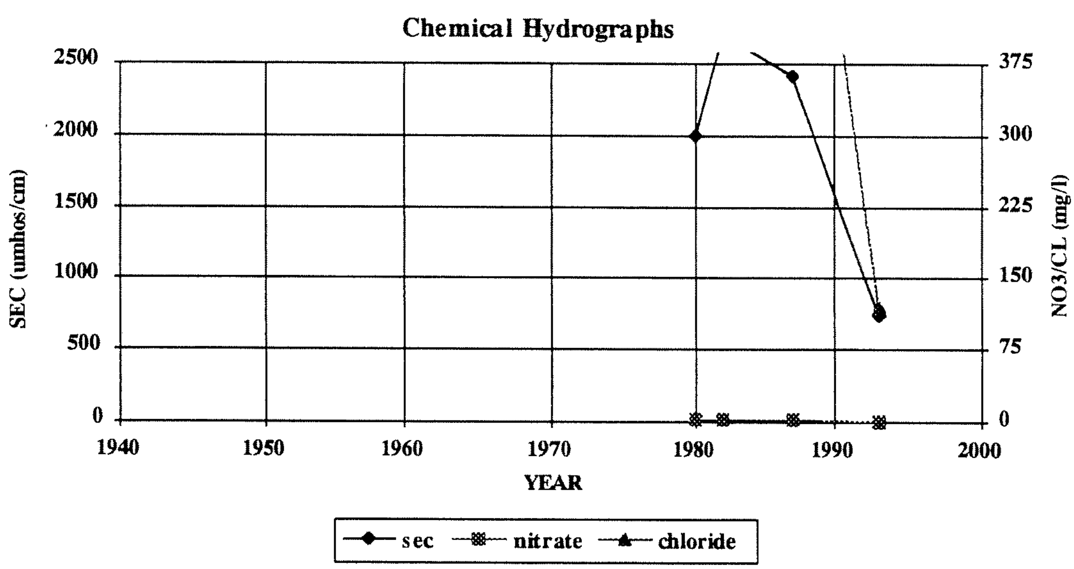
Ground Surface Elevation: 27.1

Perforation Rng Elevations -334.9 - -502.9

Depth: 600

Perforation Range: 362 - 530





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-21N01

Area: PRESSURE 400

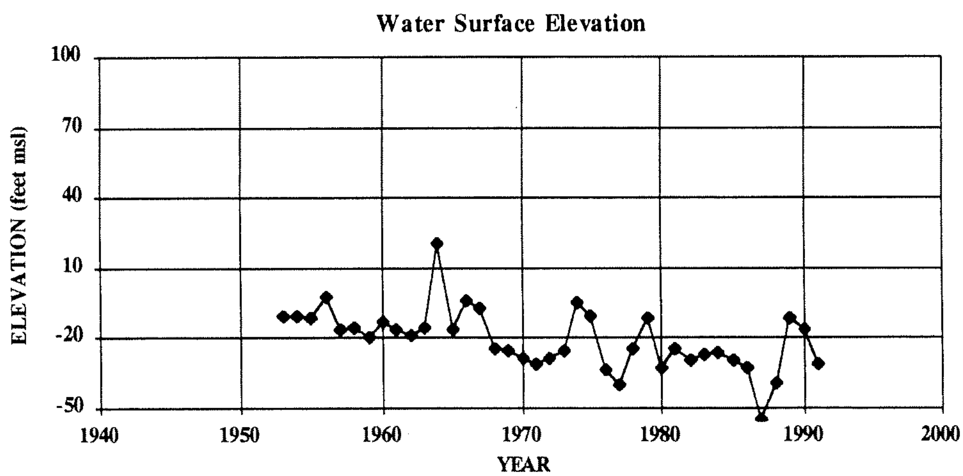
Use: IRRIGATION

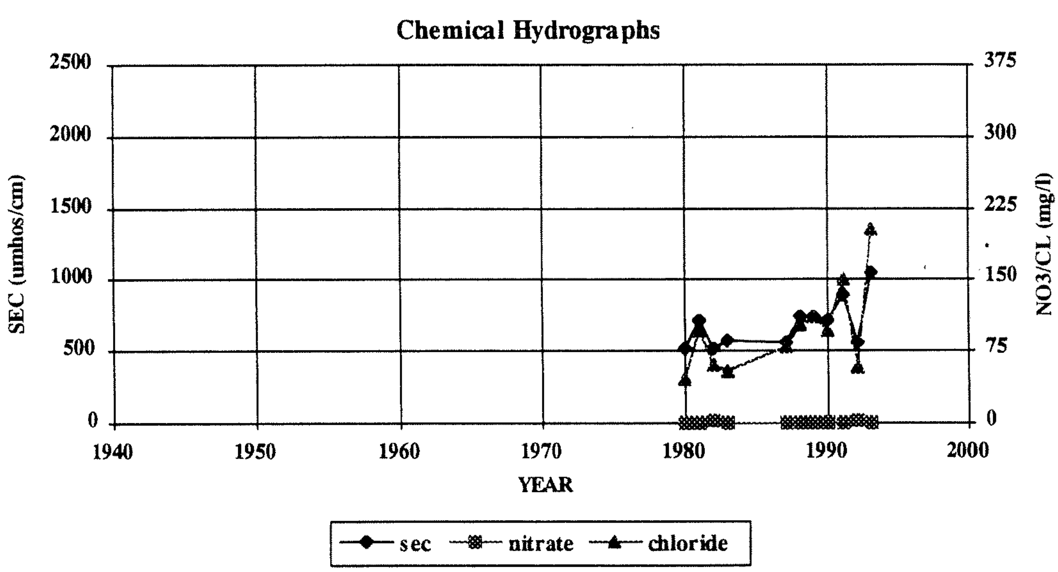
Ground Surface Elevation: 17.3

Perforation Rng Elevations -351.7 - -532.7

Depth: 550

Perforation Range: 369 - 550





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-27P01

Area: PRESSURE 400

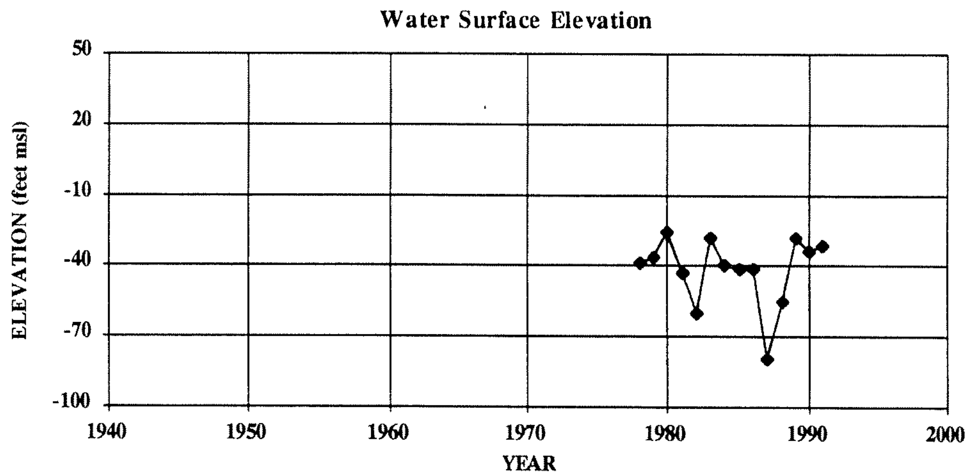
Use: IRRIGATION

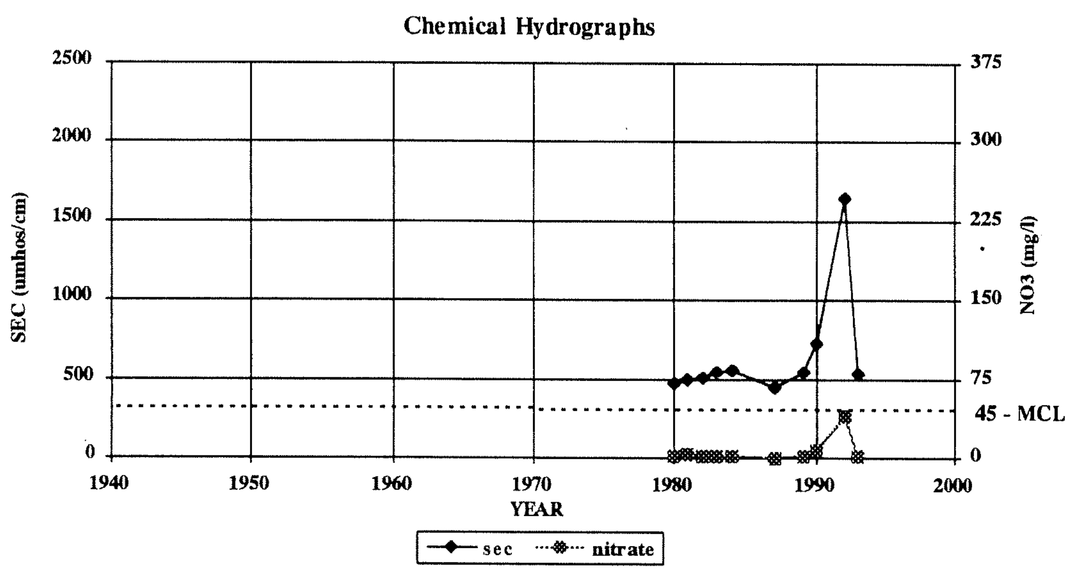
Ground Surface Elevation: 50.5

Perforation Rng Elevations -361.5 - -521.5

Depth: 606

Perforation Range: 412 - 572





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-29C02

Area: PRESSURE 400

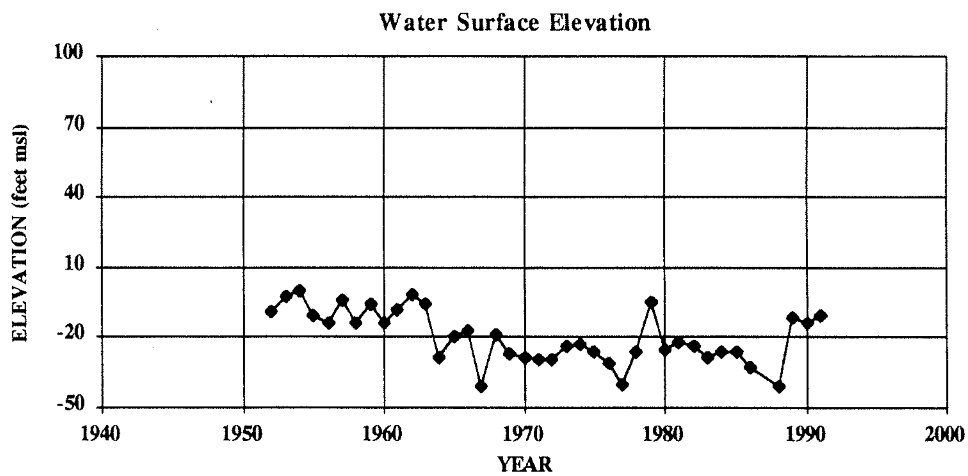
Use: IRRIGATION

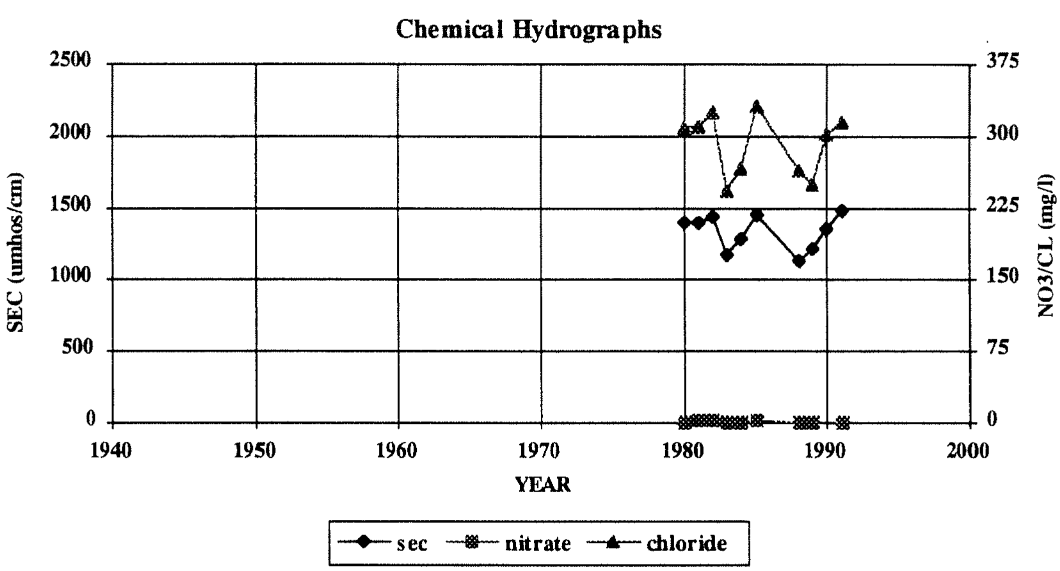
Ground Surface Elevation: 14.3

Perforation Rng Elevations -339.7 - -535.7

Depth: 550

Perforation Range: 354 - 550





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-29D03

Area: PRESSURE 400

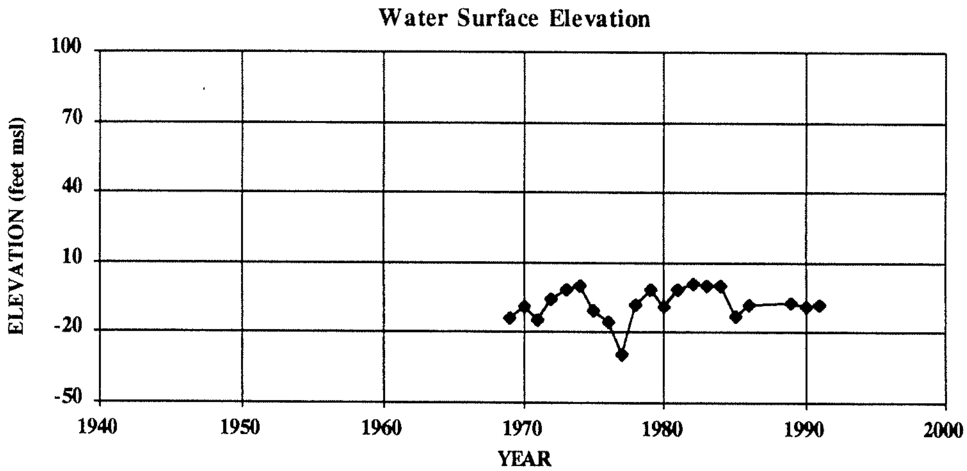
Use: IRRIGATION

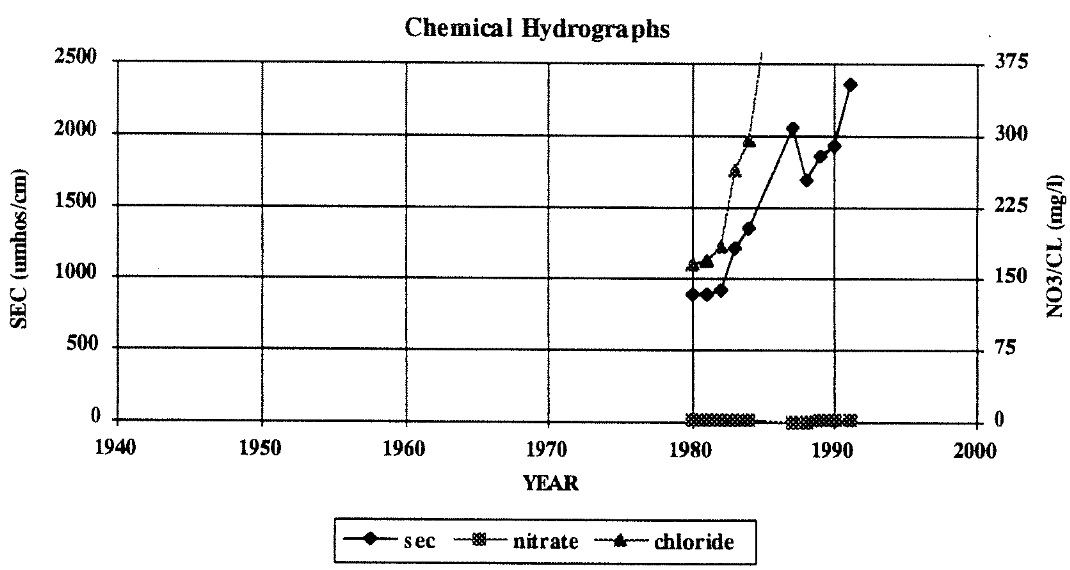
Ground Surface Elevation: 9.7

Perforation Rng Elevations -422.3 - -622.3

Depth: 632

Perforation Range: 432 - 632





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-29F02

Area: PRESSURE 400

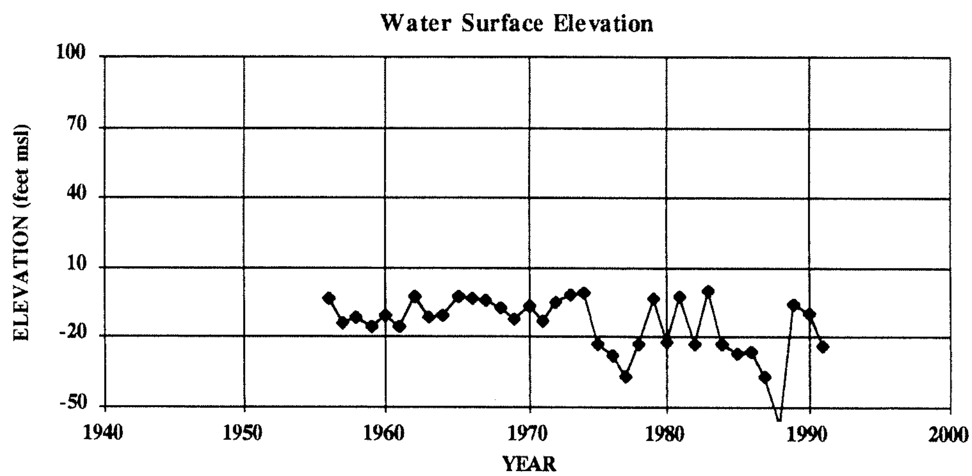
Use: IRRIGATION

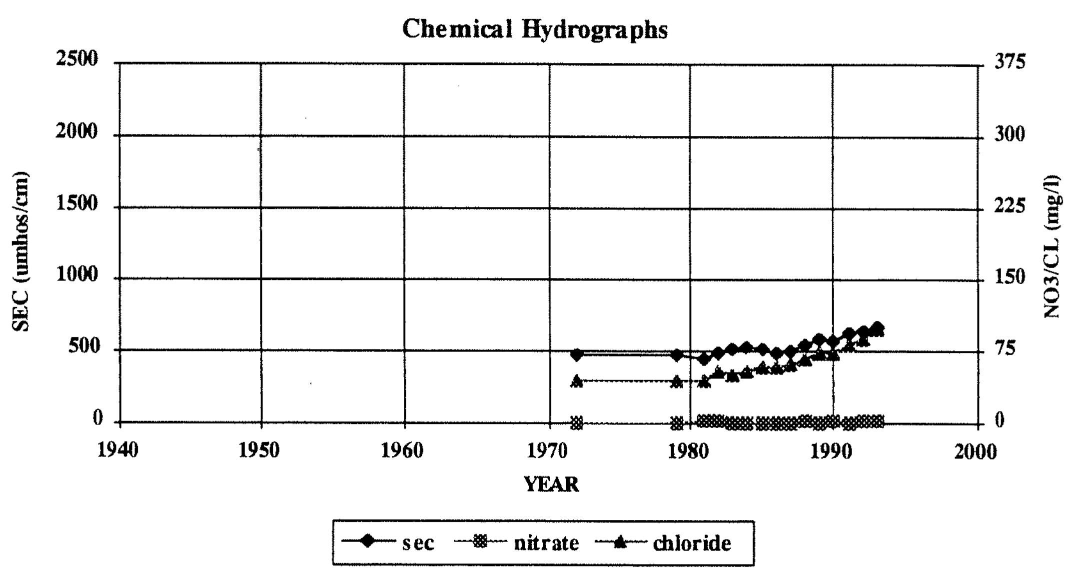
Ground Surface Elevation: 18

Perforation Rng Elevations -329 - -521

Depth: 549

Perforation Range: 347 - 539





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-29M02

Area: PRESSURE 400

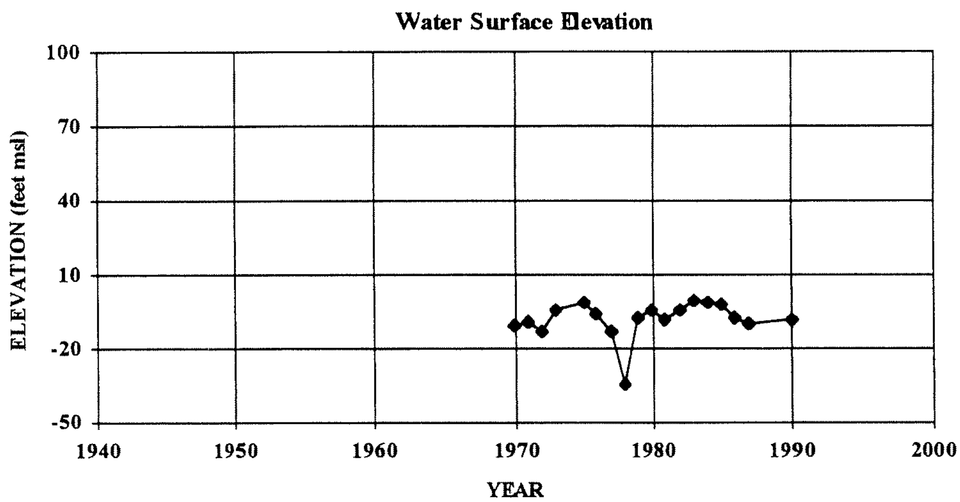
Use: IRRIGATION

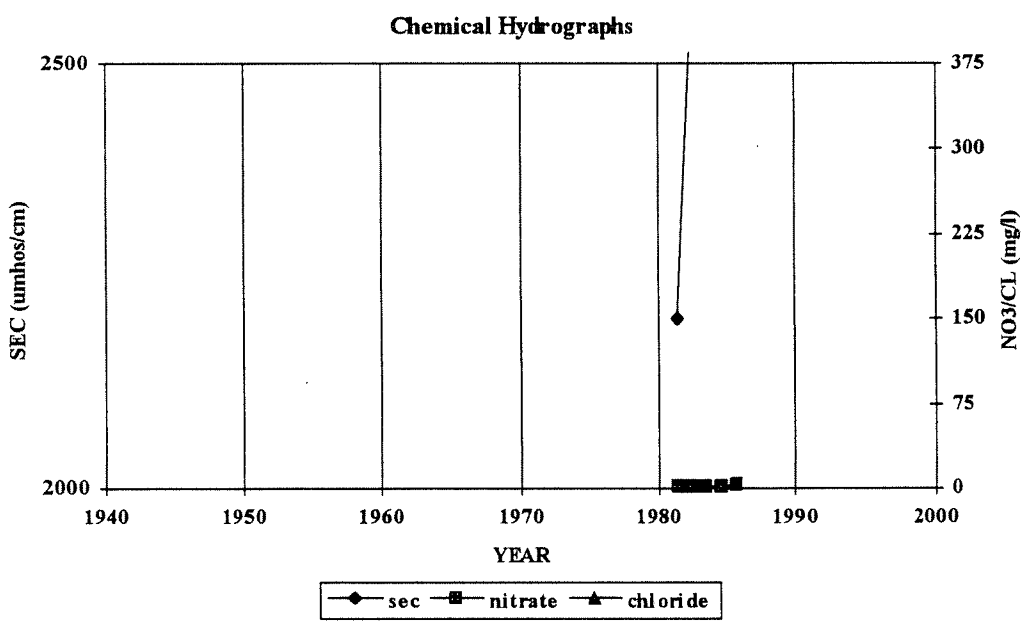
Ground Surface Elevation: No Data

Perforation Rng Elevations: -

Depth: 611

Perforation Range: 410 - 566





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-30A01

Area: PRESSURE 400

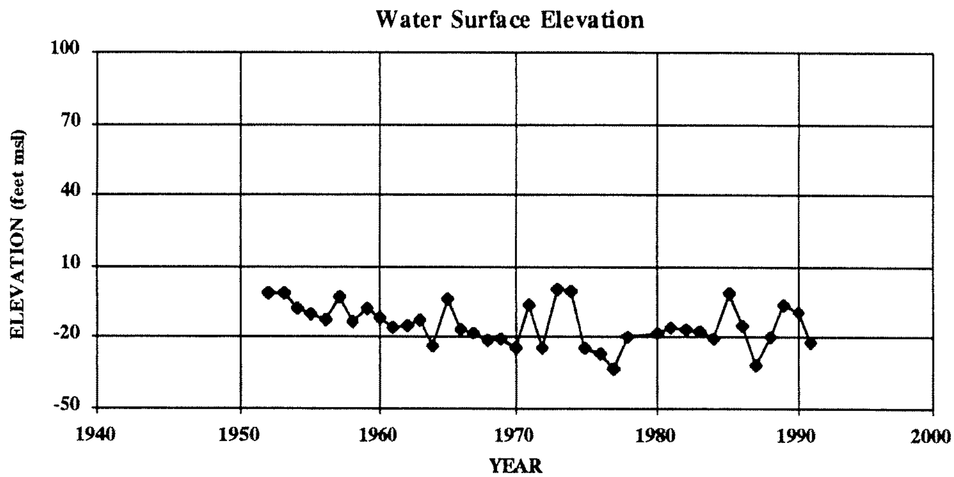
Use: IRRIGATION

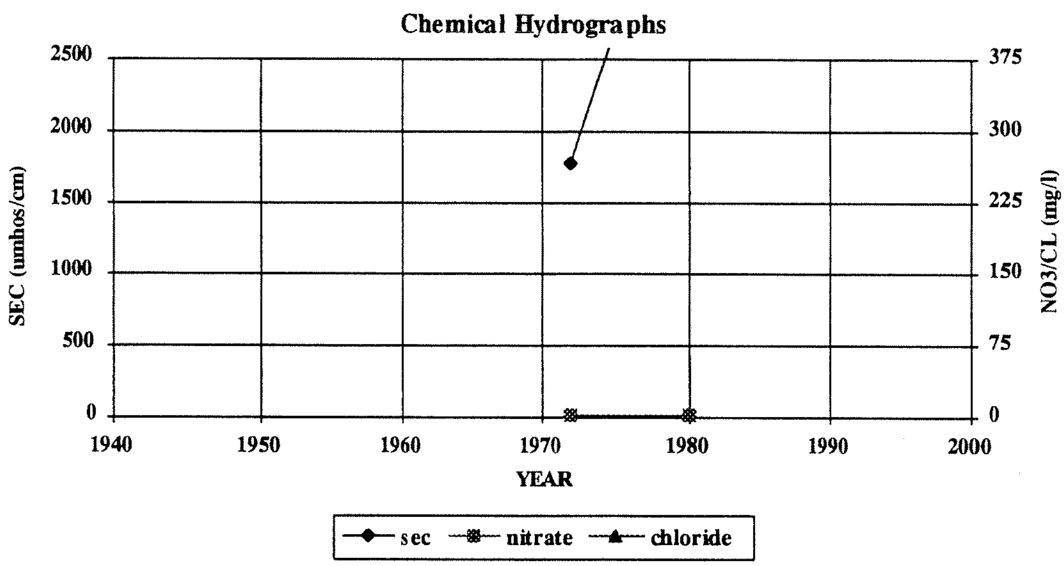
Ground Surface Elevation: 16.2

Perforation Rng Elevations -375.8 - -585.8

Depth: 602

Perforation Range: 392 - 602





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-30H01

Area: PRESSURE 400

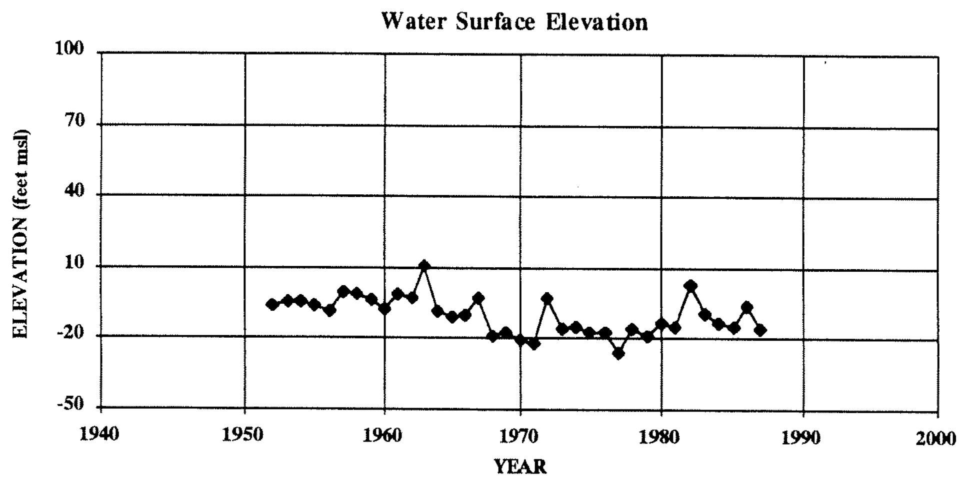
Use: IRRIGATION

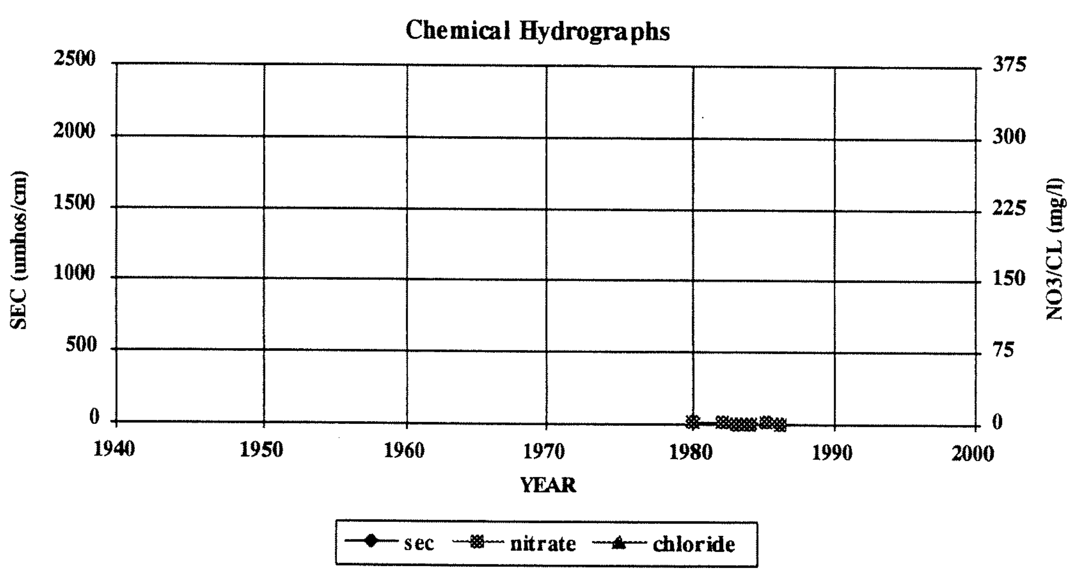
Ground Surface Elevation: 8.8

Perforation Rng Elevations -311.2 - -541.2

Depth: 550

Perforation Range: 320 - 550





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-30L01

Area: PRESSURE 400

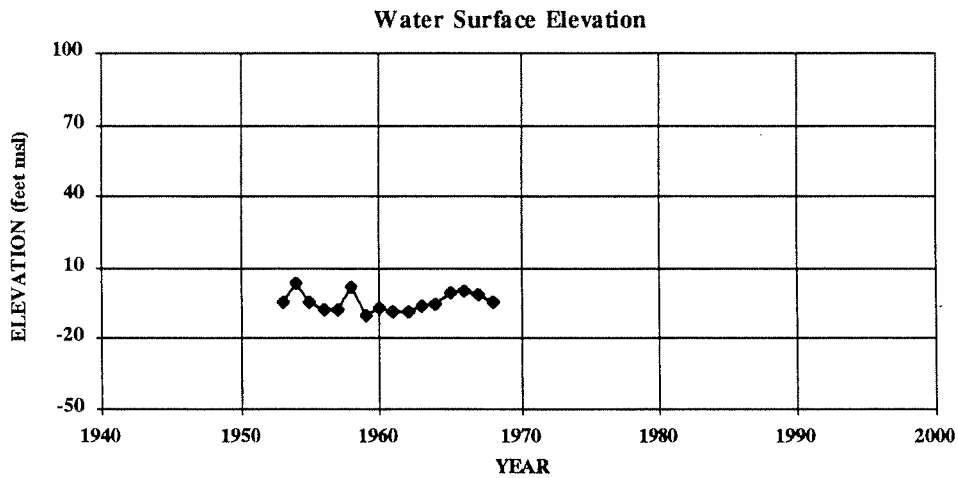
Use: IRRIGATION

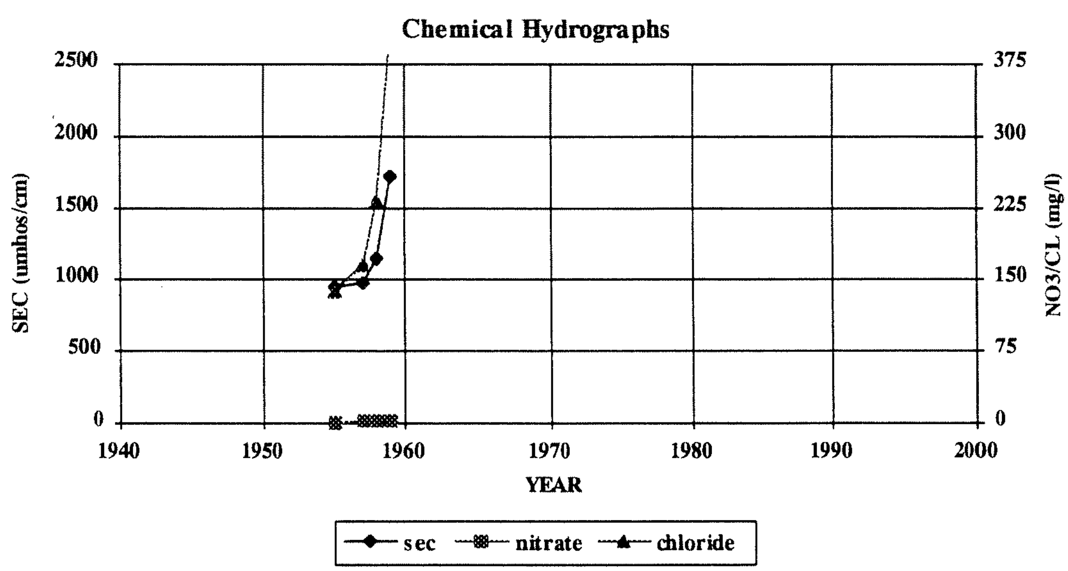
Ground Surface Elevation: 9.2

Perforation Rng Elevations -346.8 - -595.8

Depth: 605

Perforation Range: 356 - 605





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-30Q02

Area: PRESSURE 400

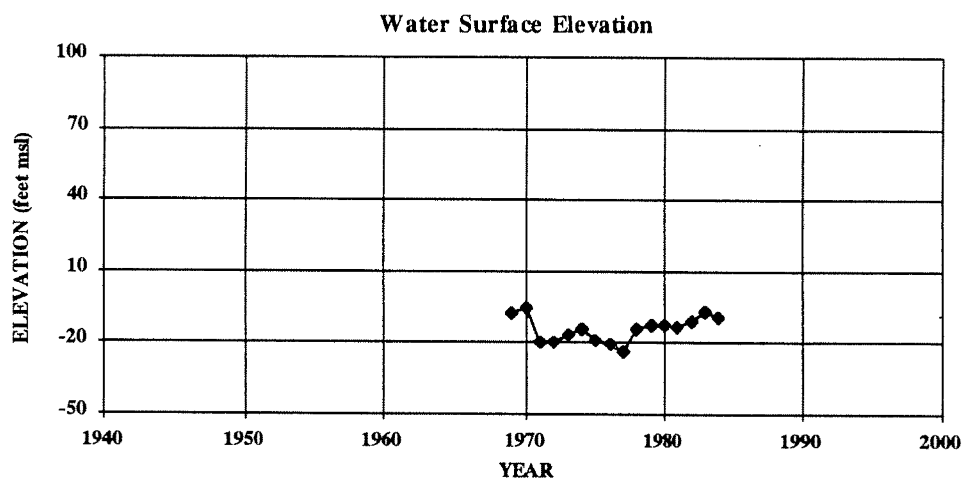
Use: IRRIGATION

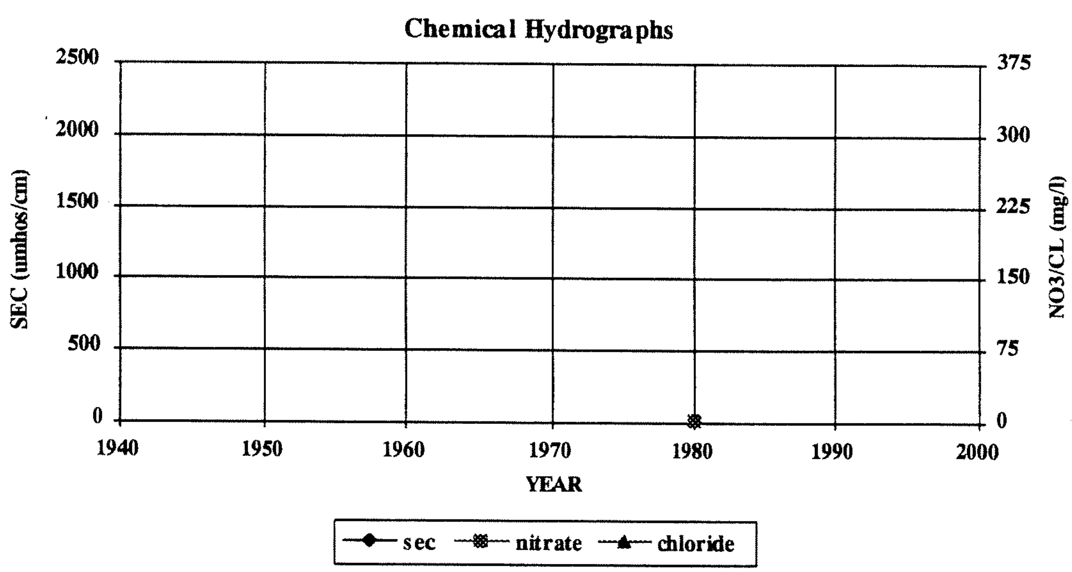
Ground Surface Elevation: 10.5

Perforation Rng Elevations -339.5 - -543.5

Depth: 554

Perforation Range: 350 - 554





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-31D02

Area: PRESSURE 400

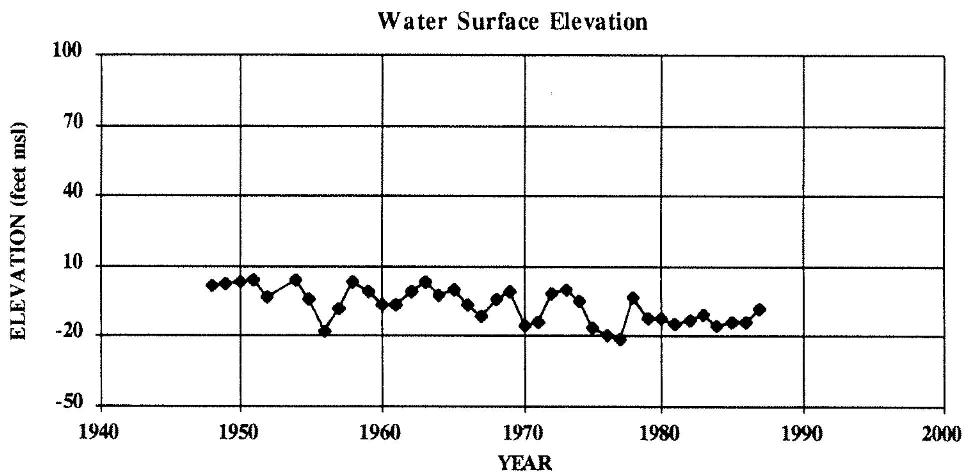
Use: IRRIGATION

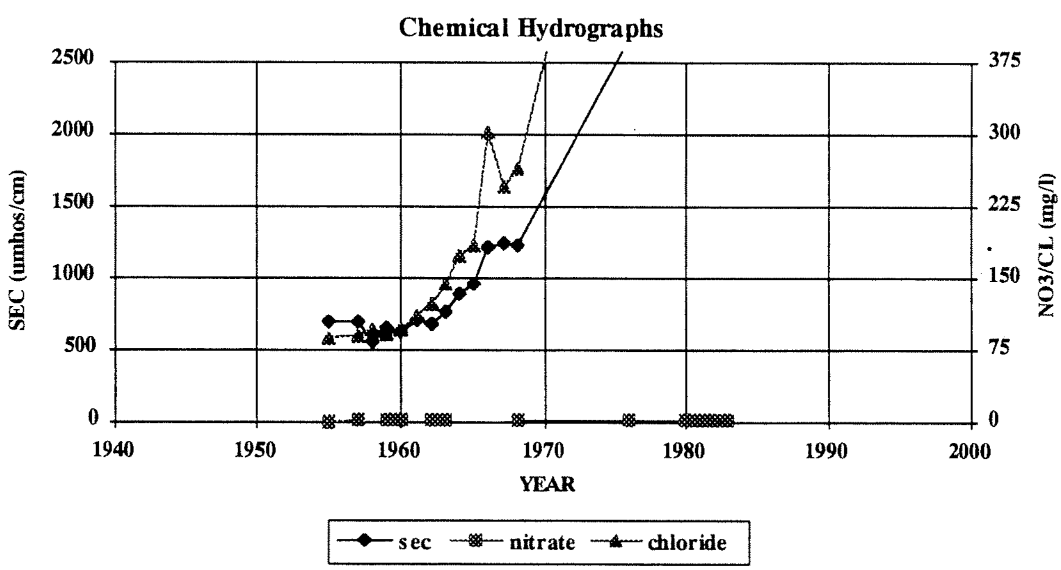
Ground Surface Elevation: 9.1

Perforation Rng Elevations -348.9 - -528.9

Depth: 559

Perforation Range: 358 - 538





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-31M02

Area: PRESSURE 400

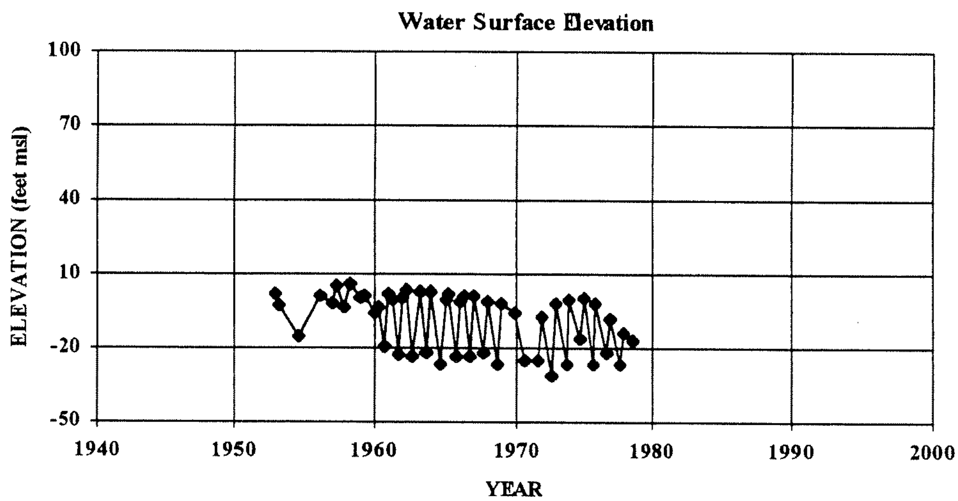
Use: IRRIGATION

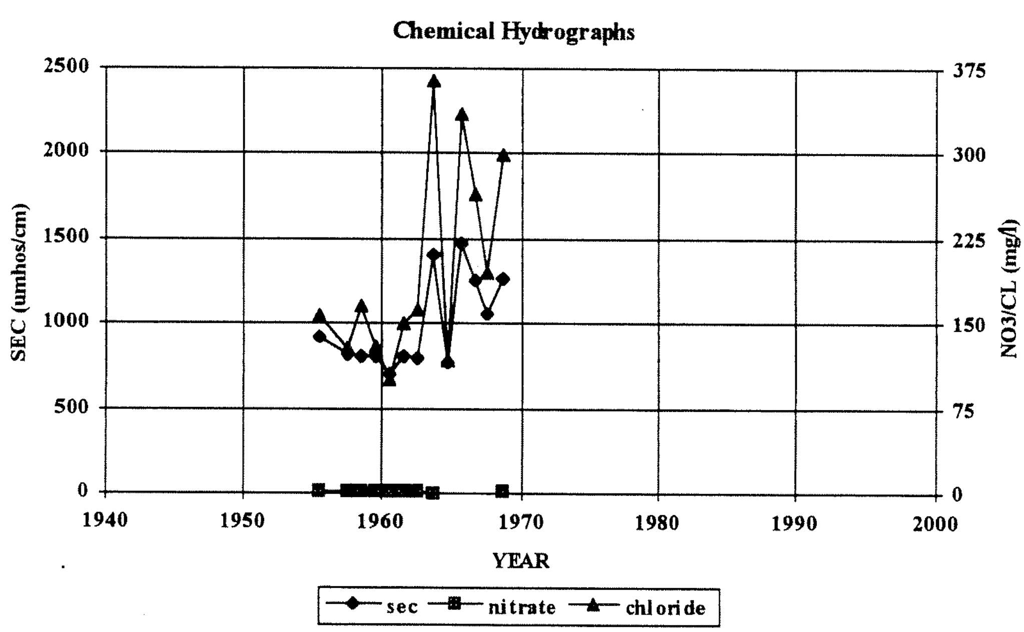
Ground Surface Elevation: 9.1

Perforation Rng Elevations: - No Data

Depth: 620

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-31N02

Area: PRESSURE 400

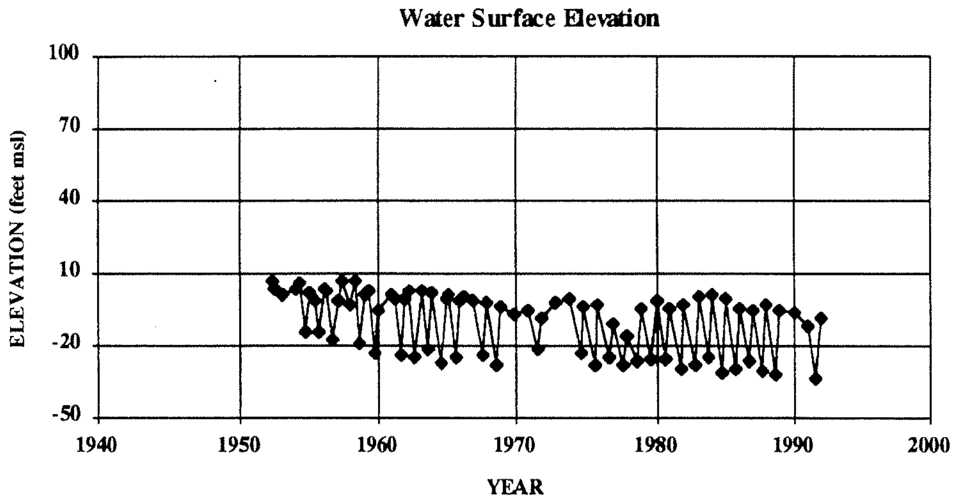
Use: IRRIGATION

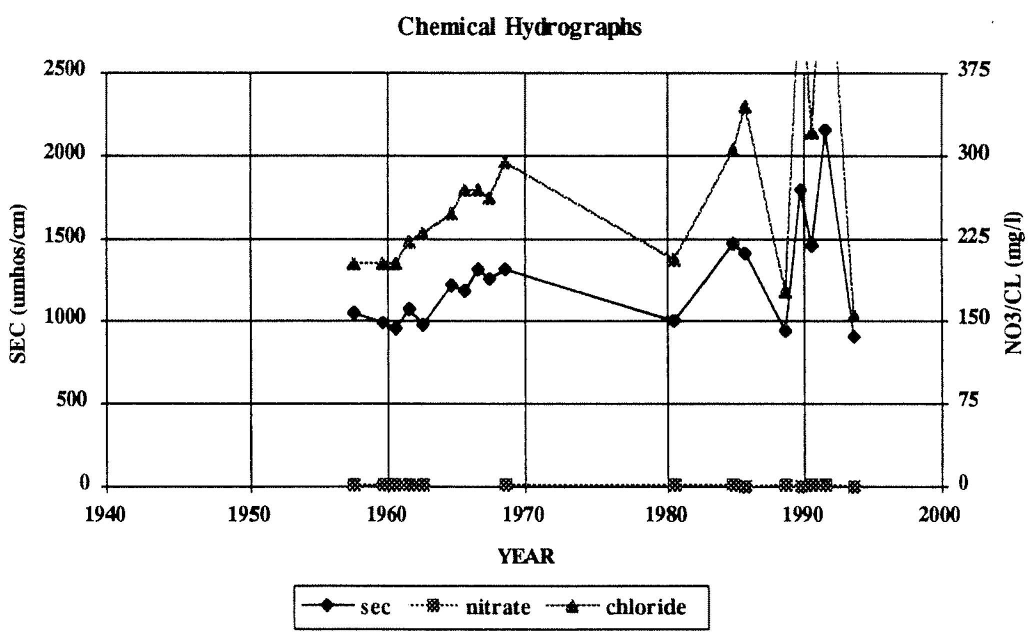
Ground Surface Elevation: 10

Perforation Rng Elevations -314 - -519

Depth: 576

Perforation Range: 324 - 529





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-04B01

Area: PRESSURE 400

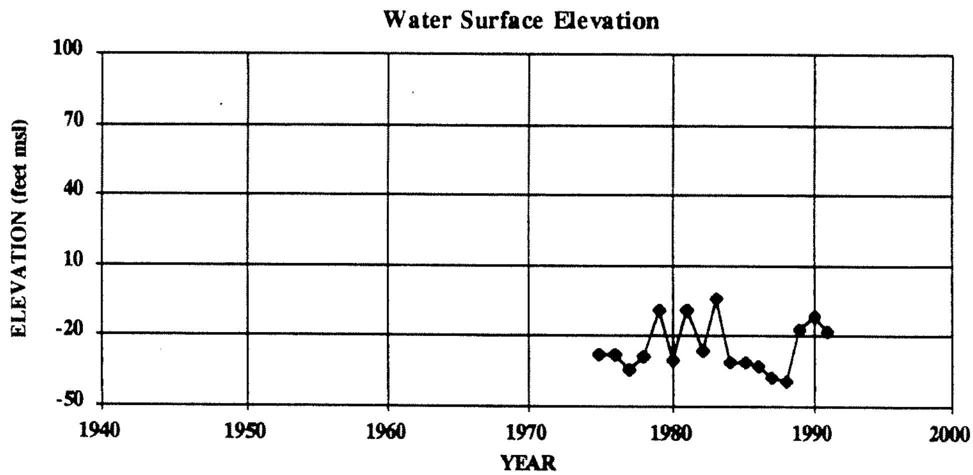
Use: IRRIGATION

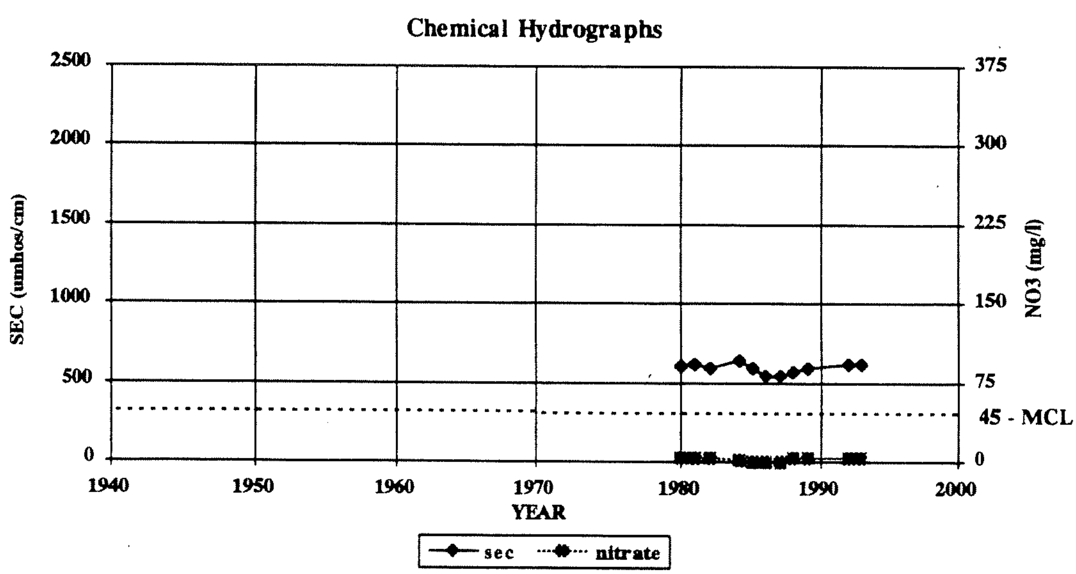
Ground Surface Elevation: 15.5

Perforation Rng Elevations -374.5 - -471.5

Depth: 500

Perforation Range: 390 - 487





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-31P01

Area: PRESSURE 400

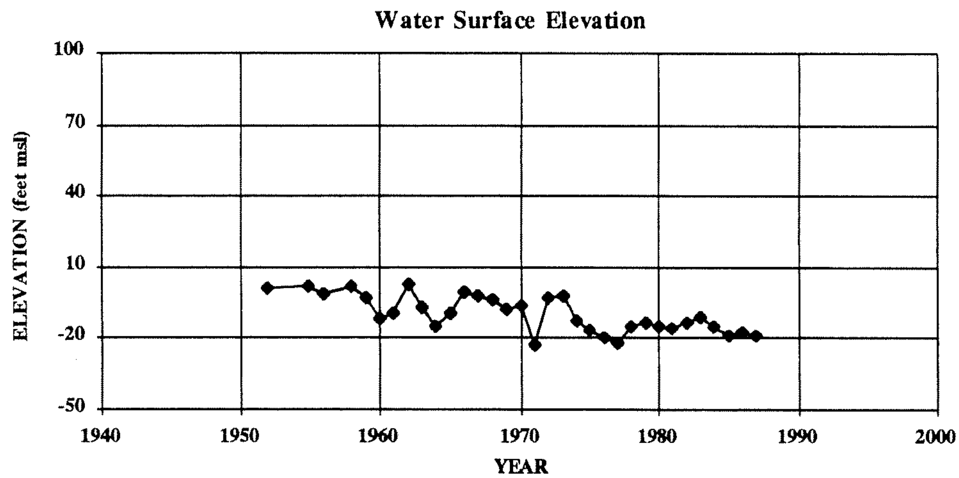
Use: IRRIGATION

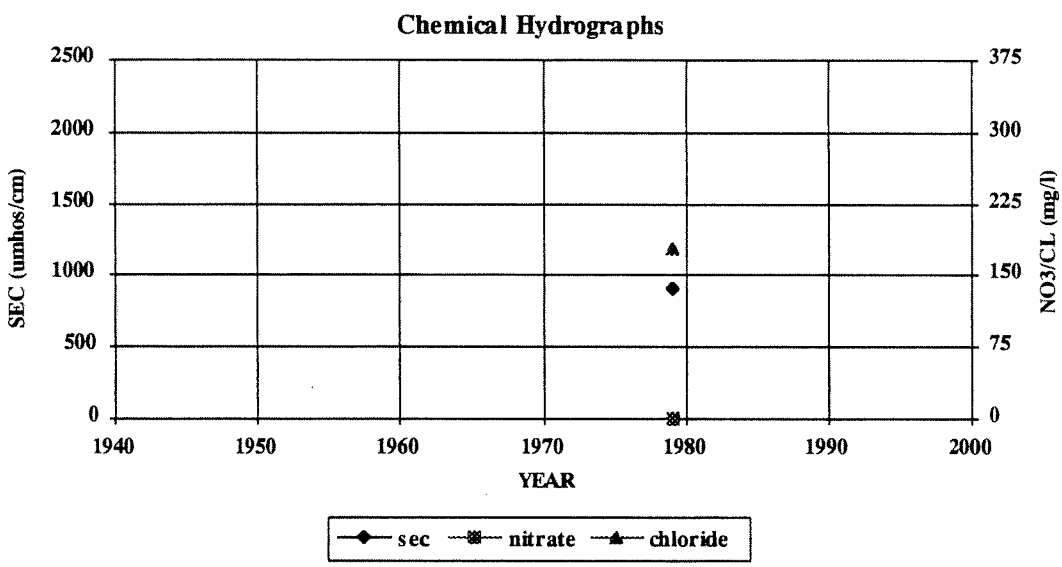
Ground Surface Elevation: 10

Perforation Rng Elevations -325 - -431

Depth: 441

Perforation Range: 335 - 441





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-31Q01

Area: PRESSURE 400

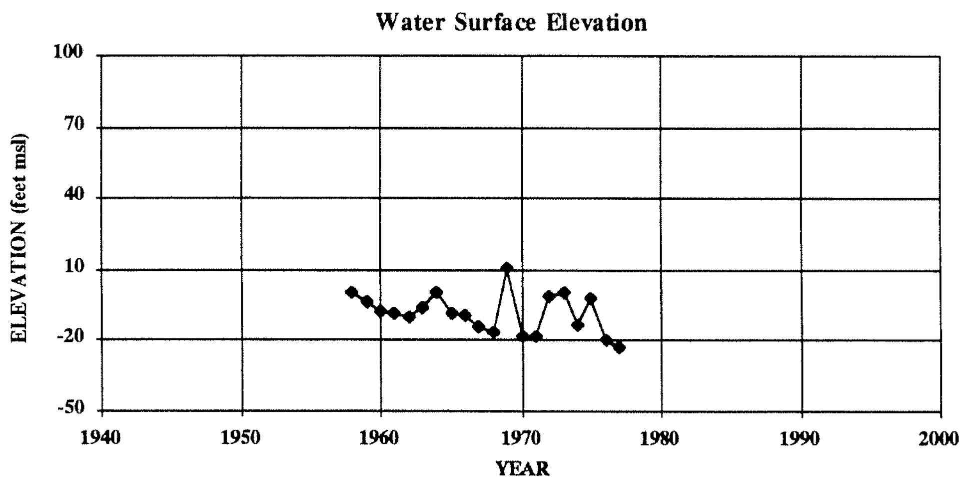
Use: IRRIGATION

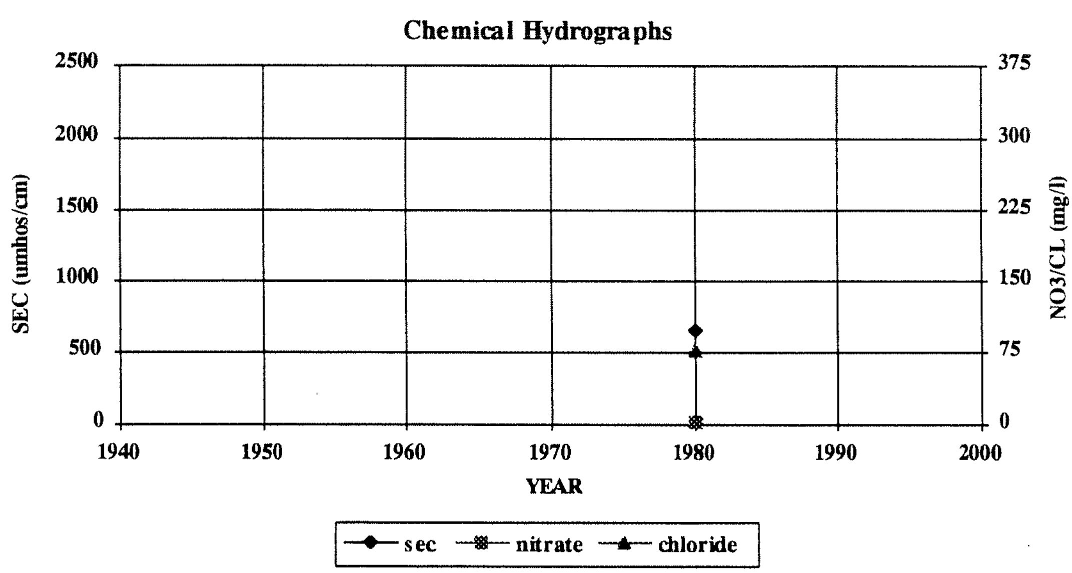
Ground Surface Elevation: 11.3

Perforation Rng Elevations #Error

Depth: 500

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-32A02

Area: PRESSURE 400

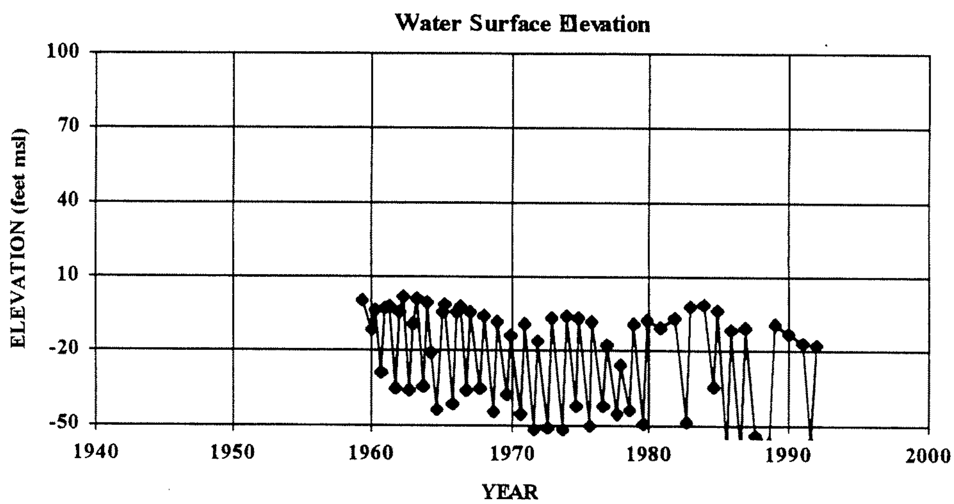
Use: IRRIGATION

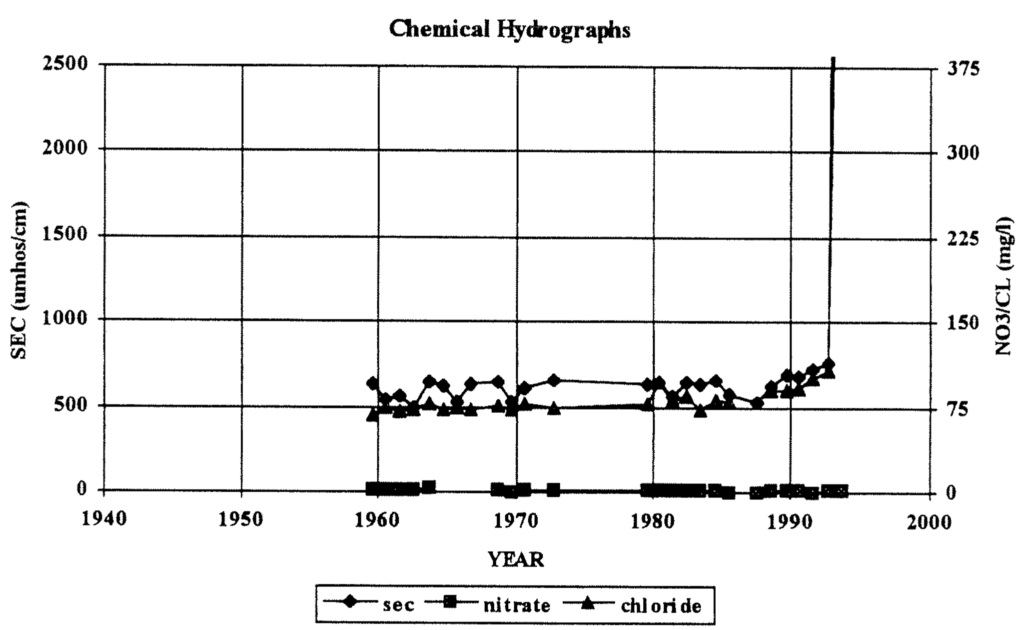
Ground Surface Elevation: 9.5

Perforation Rng Elevations: - No Data

Depth: 600

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-32C01

Area: PRESSURE 400

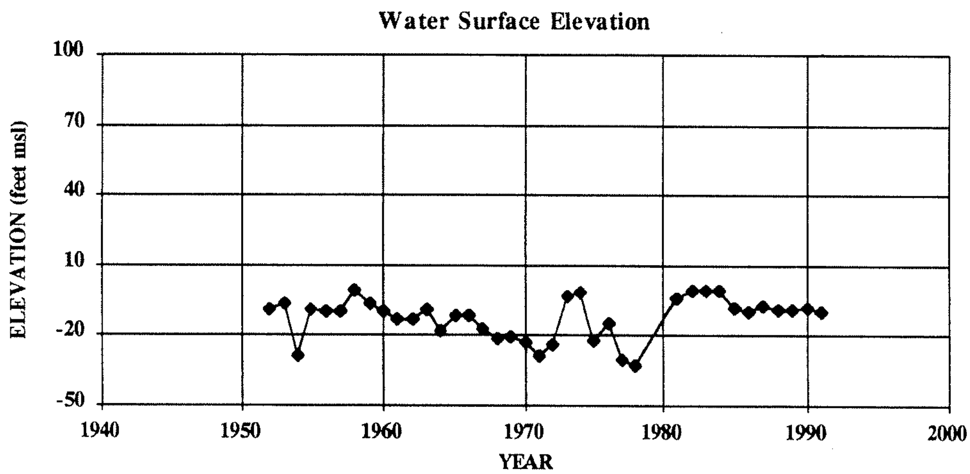
Use: Unclassified

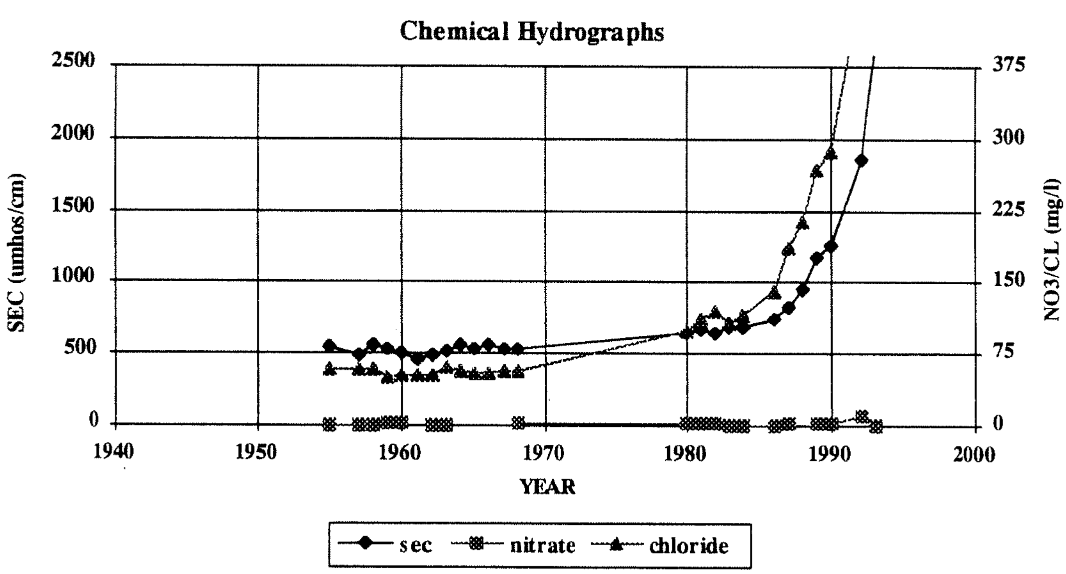
Ground Surface Elevation: 8.8

Perforation Rng Elevations -313.2 - -513.2

Depth: 562

Perforation Range: 322 - 522





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-32J03

Area: PRESSURE 400

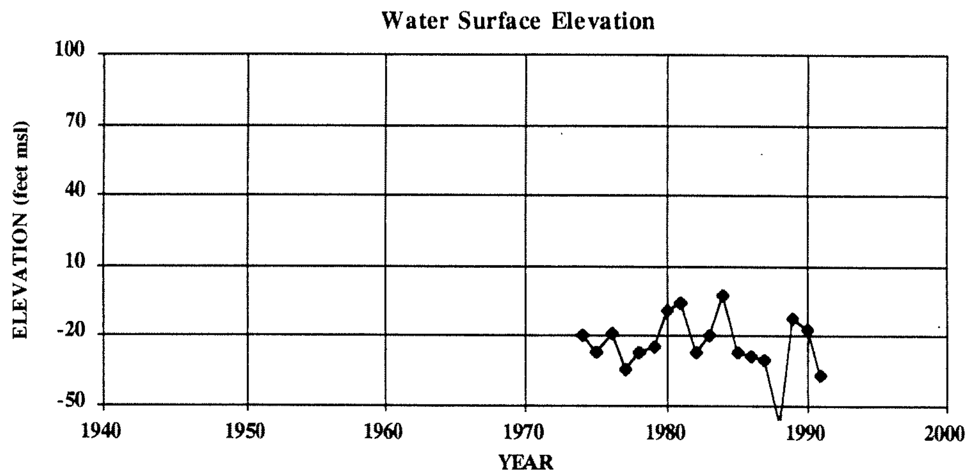
Use: IRRIGATION

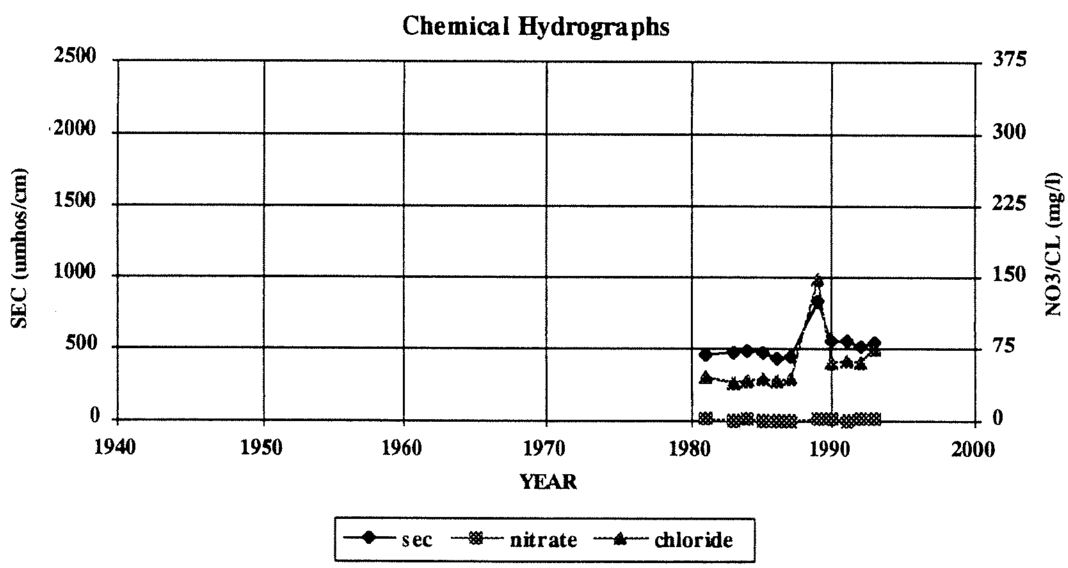
Ground Surface Elevation: 12

Perforation Rng Elevations -312 - -564

Depth: 576

Perforation Range: 324 - 576





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-32E03

Area: PRESSURE 400

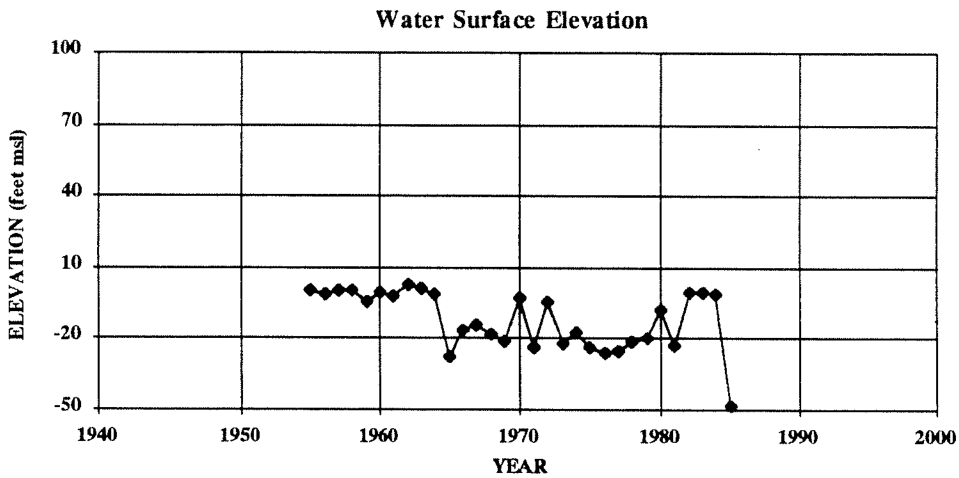
Use: IRRIGATION

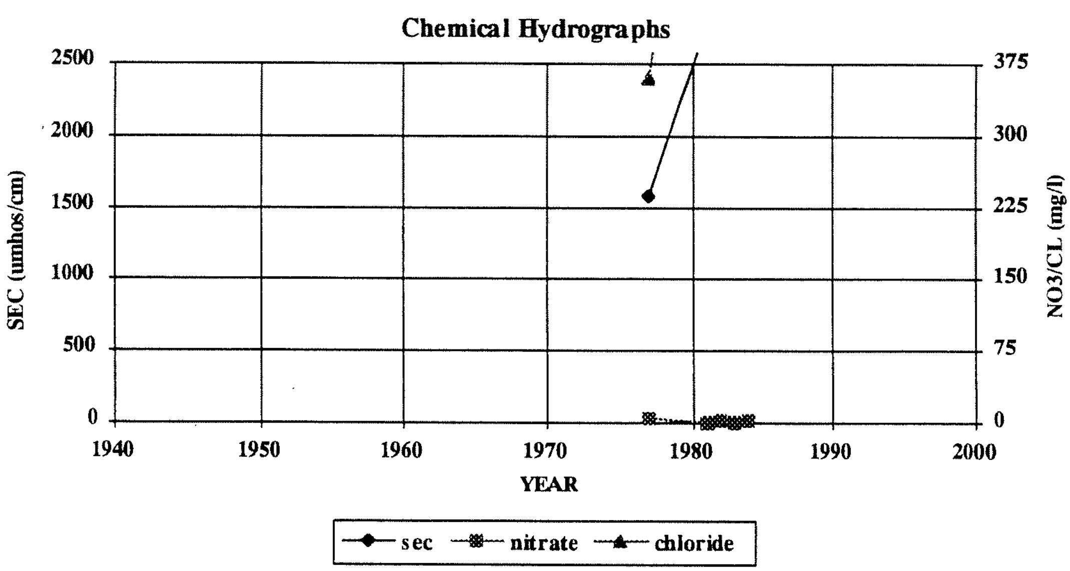
Ground Surface Elevation: 11

Perforation Rng Elevations -407 - -622

Depth: 885

Perforation Range: 418 - 633





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-03M02

Area: PRESSURE 400

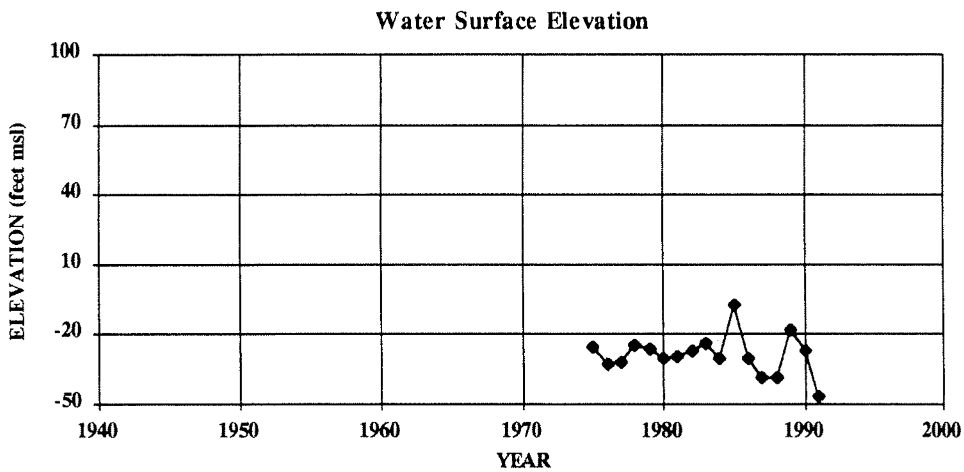
Use: IRRIGATION

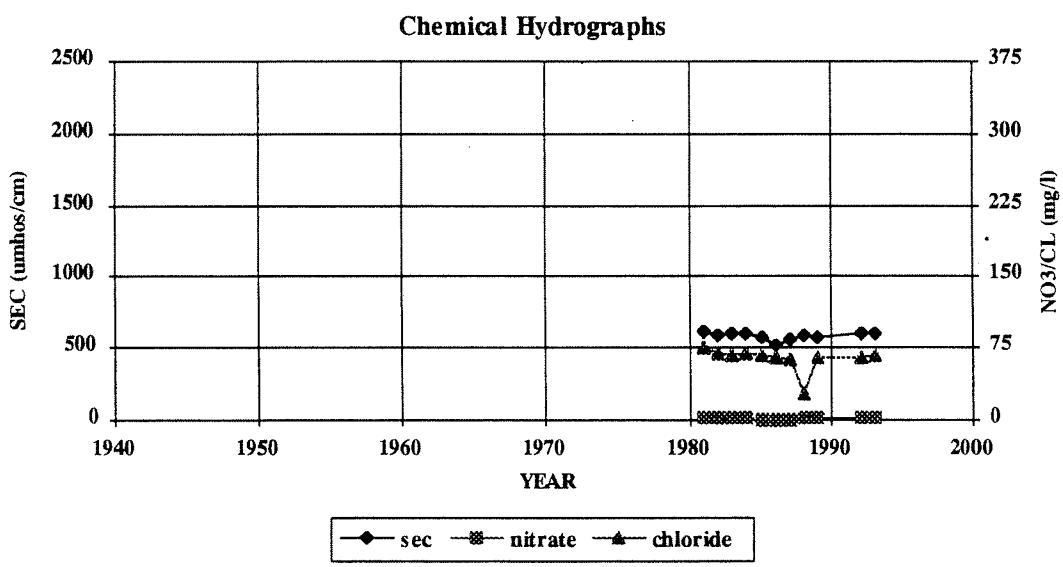
Ground Surface Elevation: 17.8

Perforation Rng Elevations -382.2 - -552.2

Depth: 587

Perforation Range: 400 - 570





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-03K02

Area: PRESSURE 400

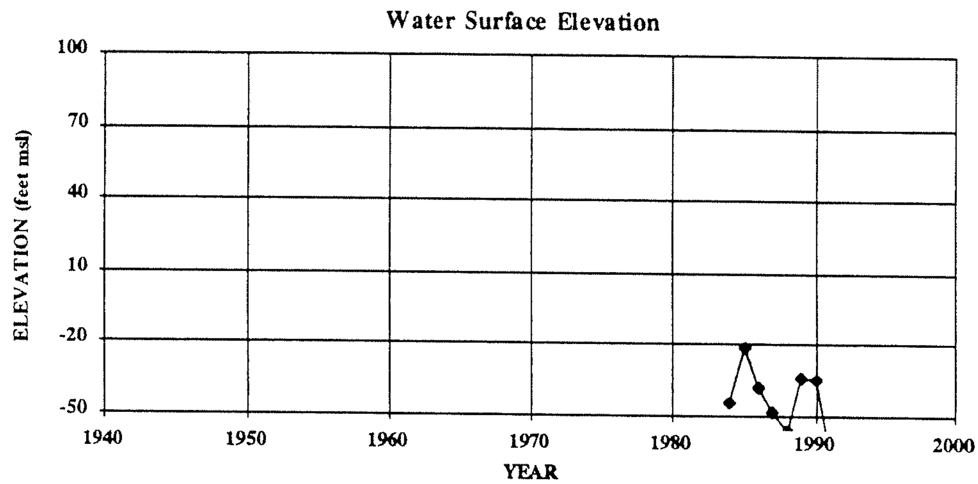
Use: IRRIGATION

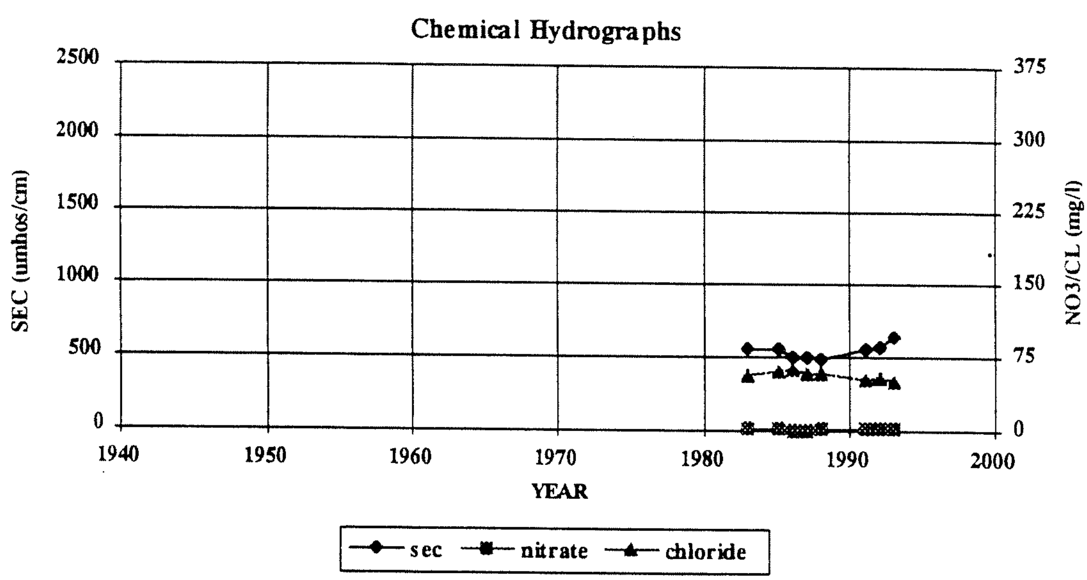
Ground Surface Elevation: 22.1

Perforation Rng Elevations -313.9 - -536.9

Depth: 600

Perforation Range: 336 - 559





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-04B01

Area: PRESSURE 400

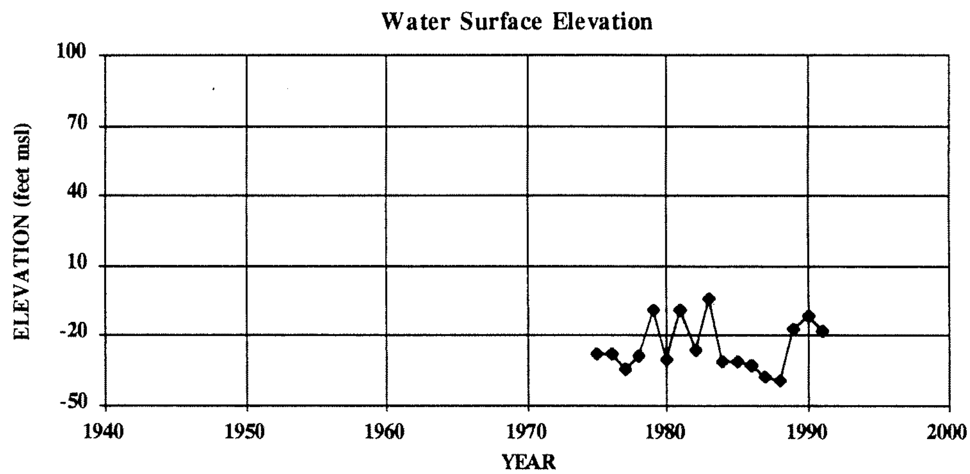
Use: IRRIGATION

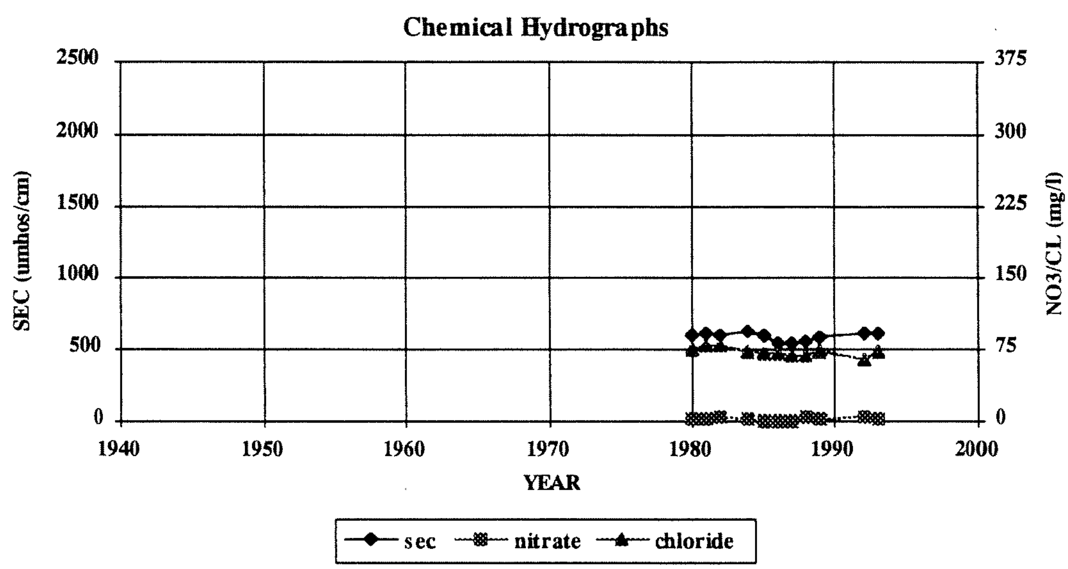
Ground Surface Elevation: 15.5

Perforation Rng Elevations -374.5 - -471.5

Depth: 500

Perforation Range: 390 - 487





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-04H01

Area: PRESSURE 400

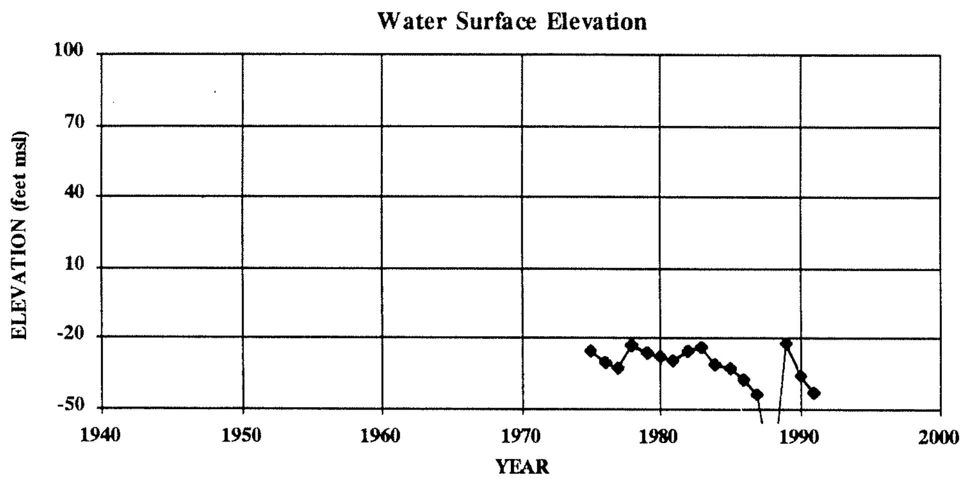
Use: IRRIGATION

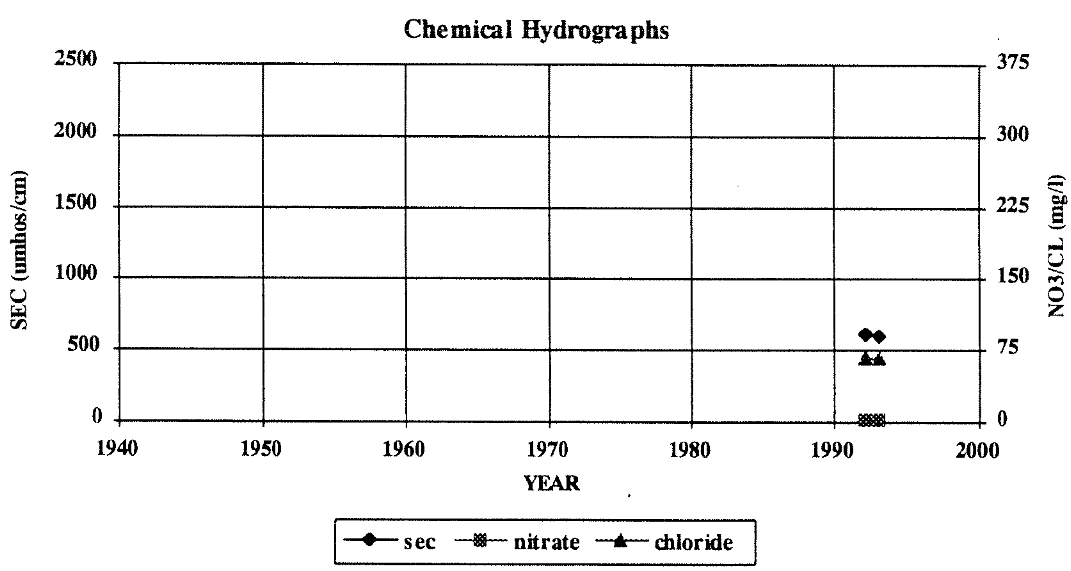
Ground Surface Elevation: 16.7

Perforation Rng Elevations -401.3 - -470.3

Depth: 512

Perforation Range: 418 - 487





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-05C02

Area: PRESSURE 400

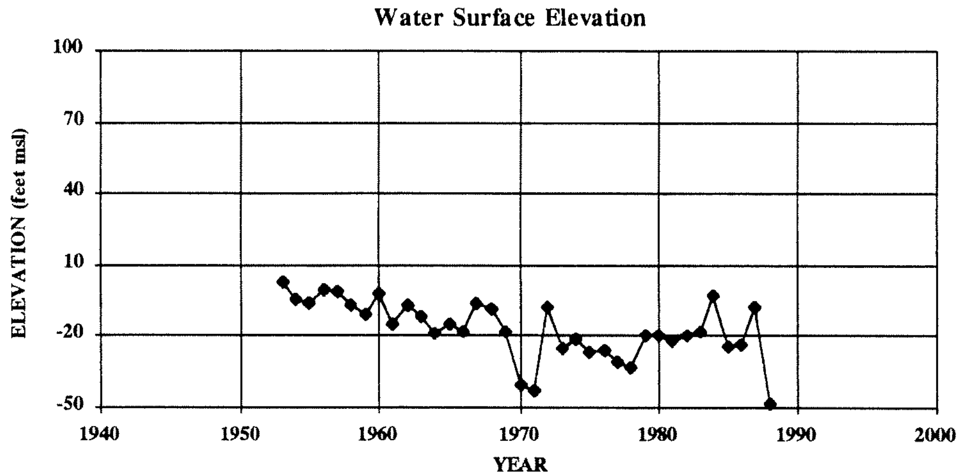
Use: IRRIGATION

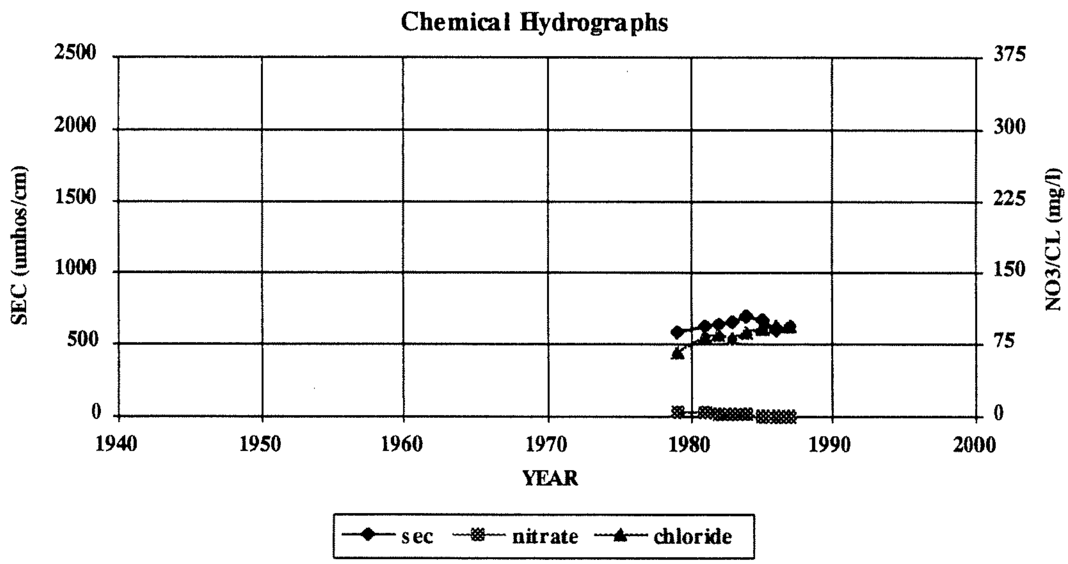
Ground Surface Elevation: 13.5

Perforation Rng Elevations -432.5 - -508.5

Depth: 576

Perforation Range: 446 - 522





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-05F04

Area: PRESSURE 400

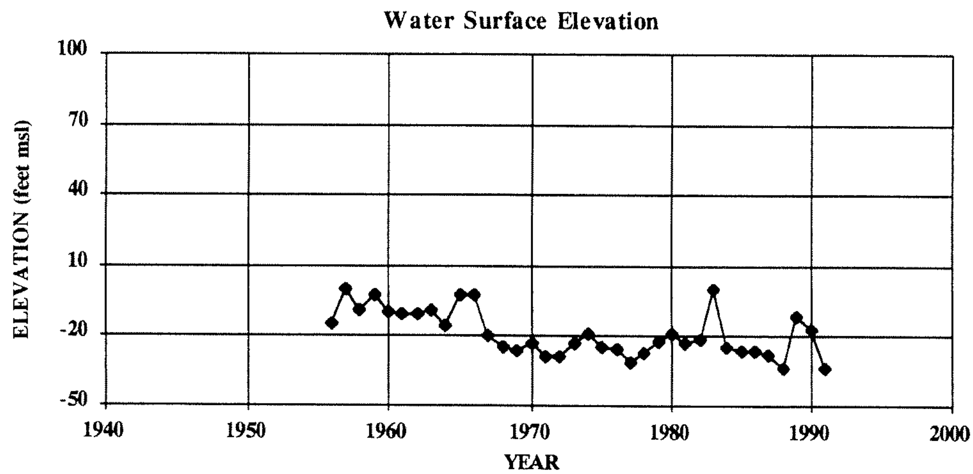
Use: IRRIGATION

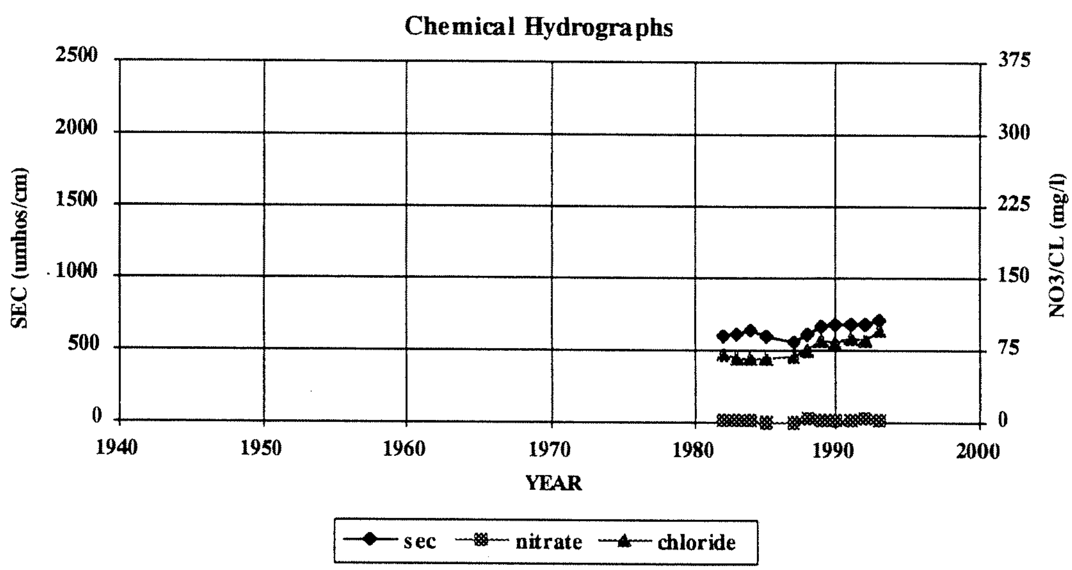
Ground Surface Elevation: 12.9

Perforation Rng Elevations -393.1 - -521.1

Depth: 582

Perforation Range: 406 - 534





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-05K01

Area: PRESSURE 400

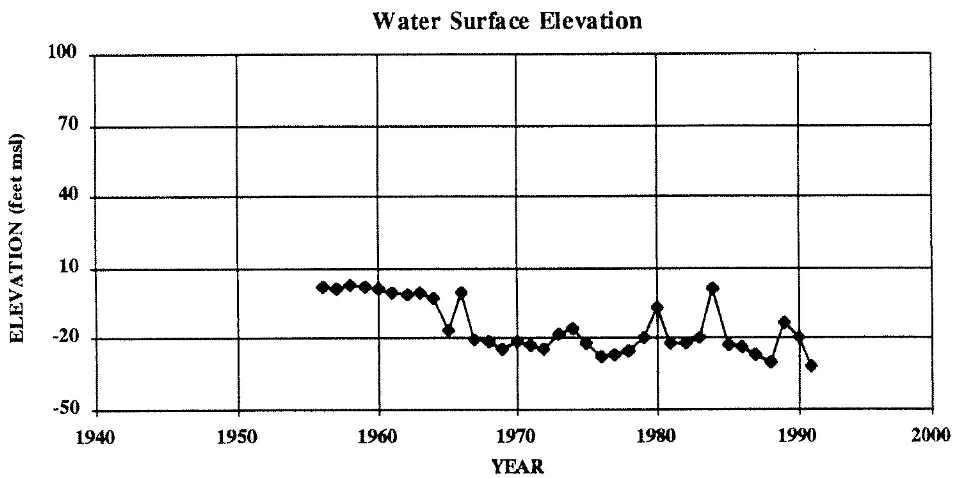
Use: IRRIGATION

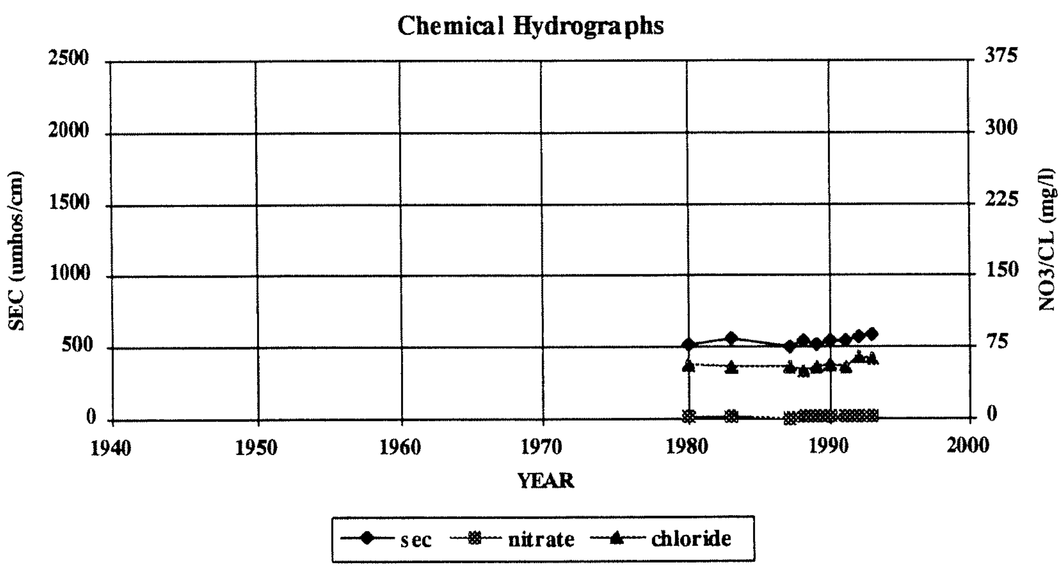
Ground Surface Elevation: 15.8

Perforation Rng Elevations -426.2 - -457.2

Depth: 510

Perforation Range: 442 - 473





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-05P02

Area: PRESSURE 400

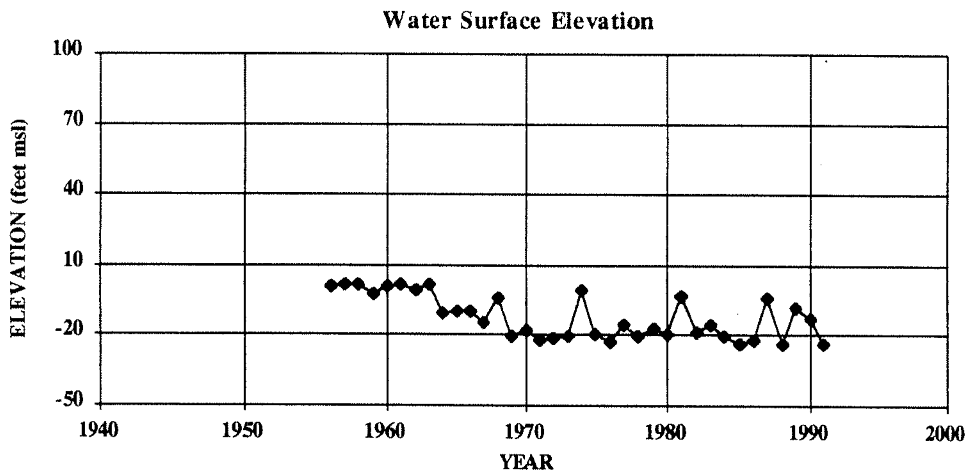
Use: IRRIGATION

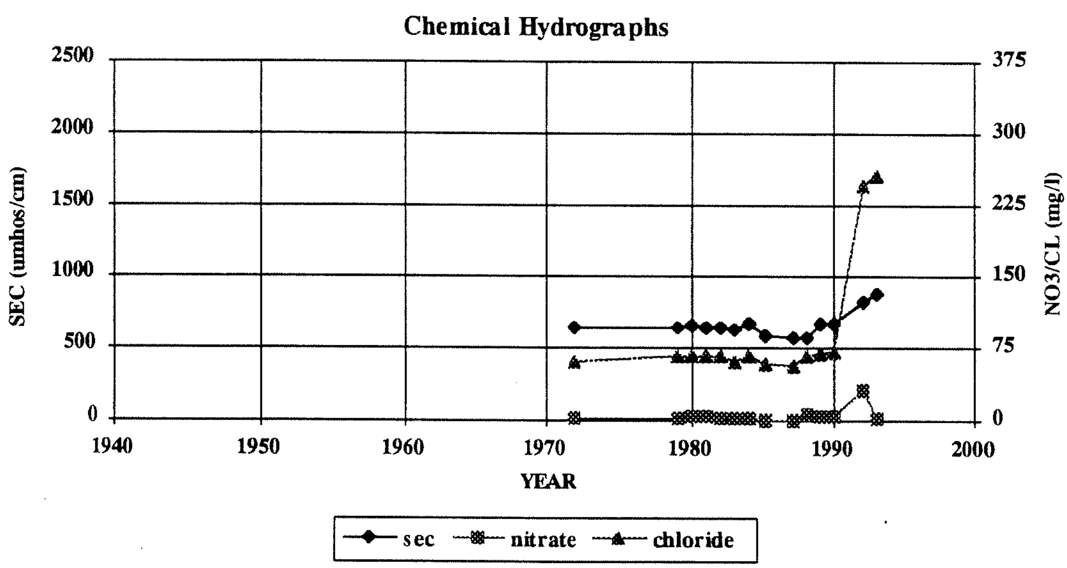
Ground Surface Elevation: 14.9

Perforation Rng Elevations -449.1 - -573.1

Depth: 606

Perforation Range: 464 - 588





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-06B01

Area: PRESSURE 400

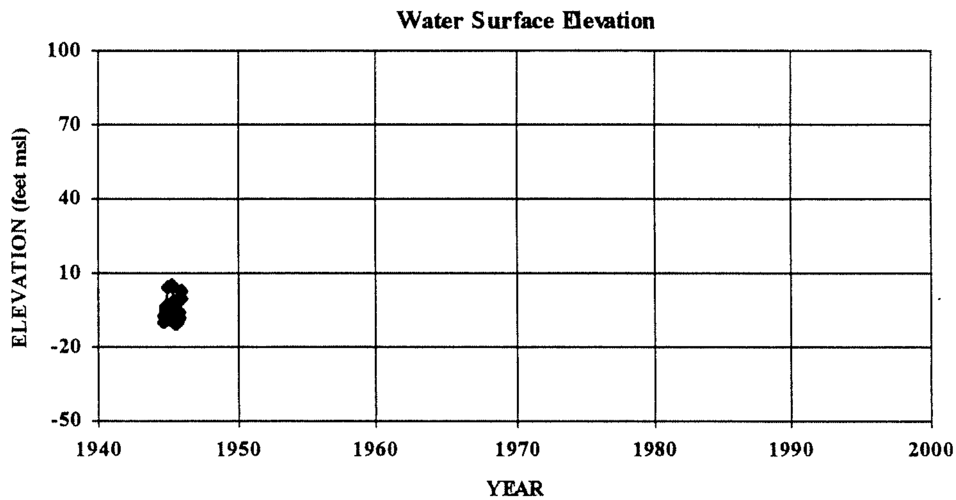
Use: IRRIGATION

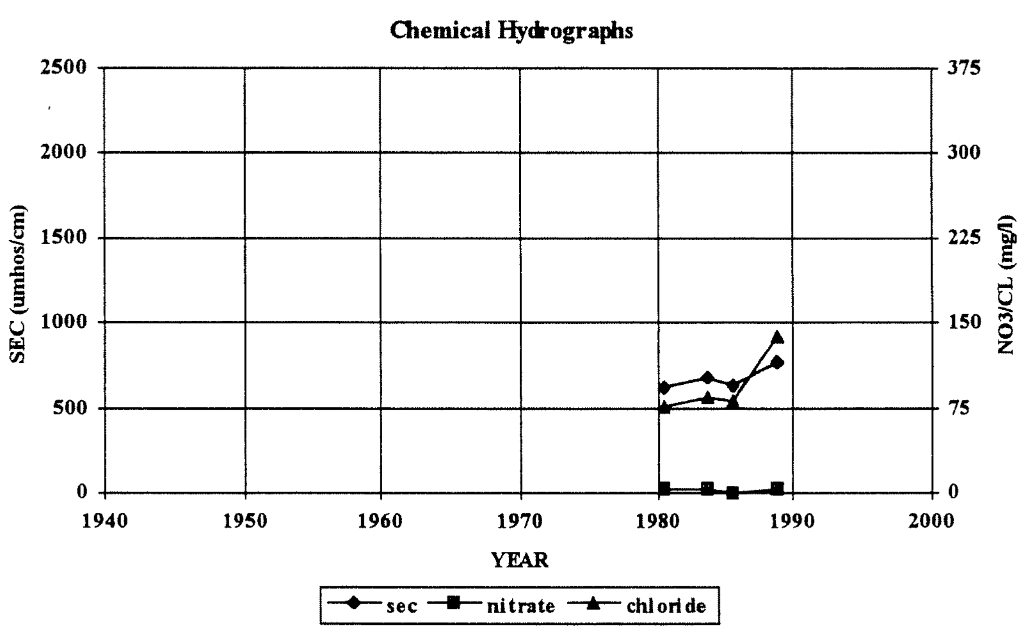
Ground Surface Elevation: No Data

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-06J03

Area: PRESSURE 400

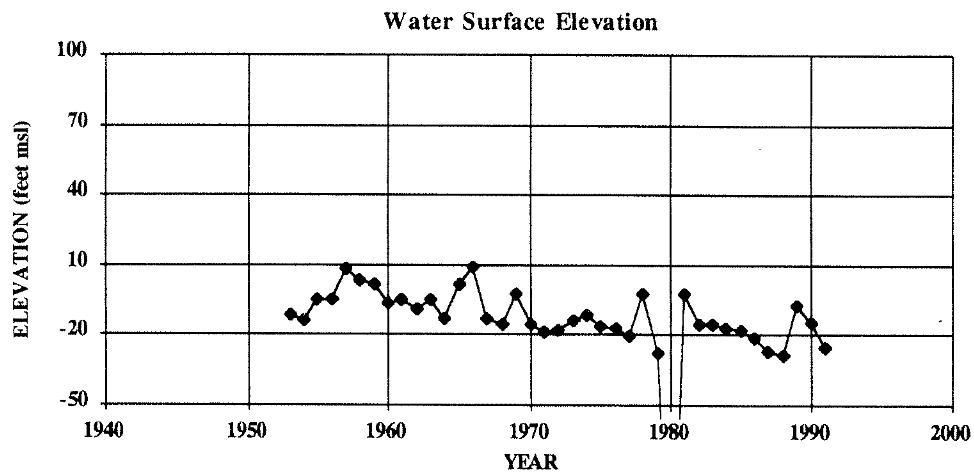
Use: IRRIGATION

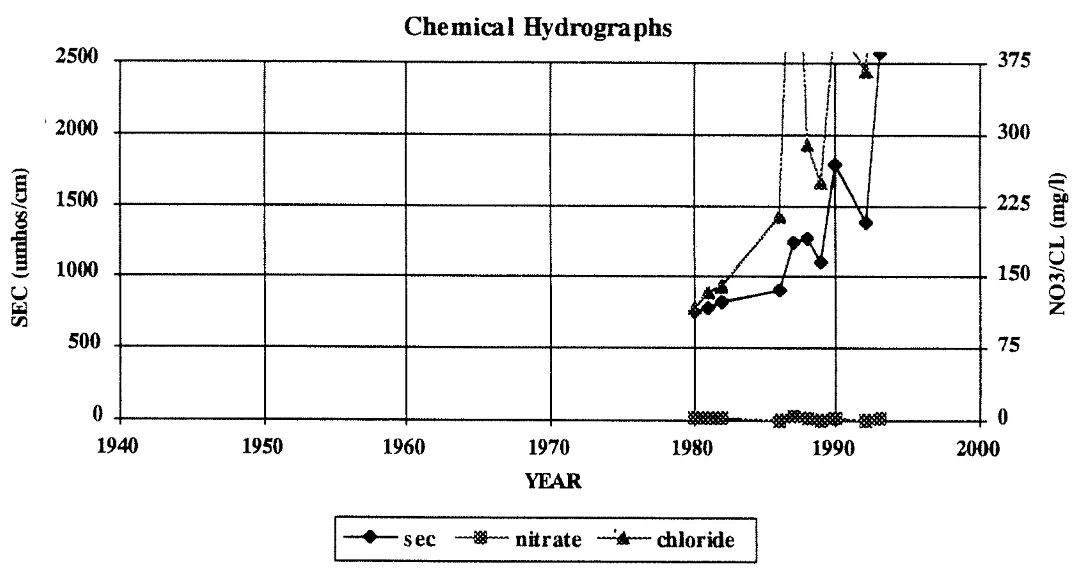
Ground Surface Elevation: 13

Perforation Rng Elevations -362 - -537

Depth: 550

Perforation Range: 375 - 550





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-06J03

Area: PRESSURE 400

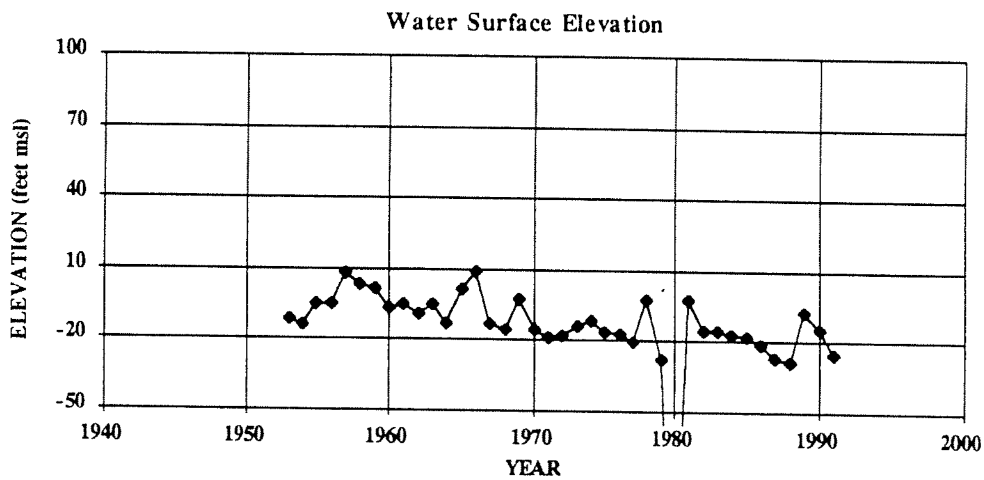
Use: IRRIGATION

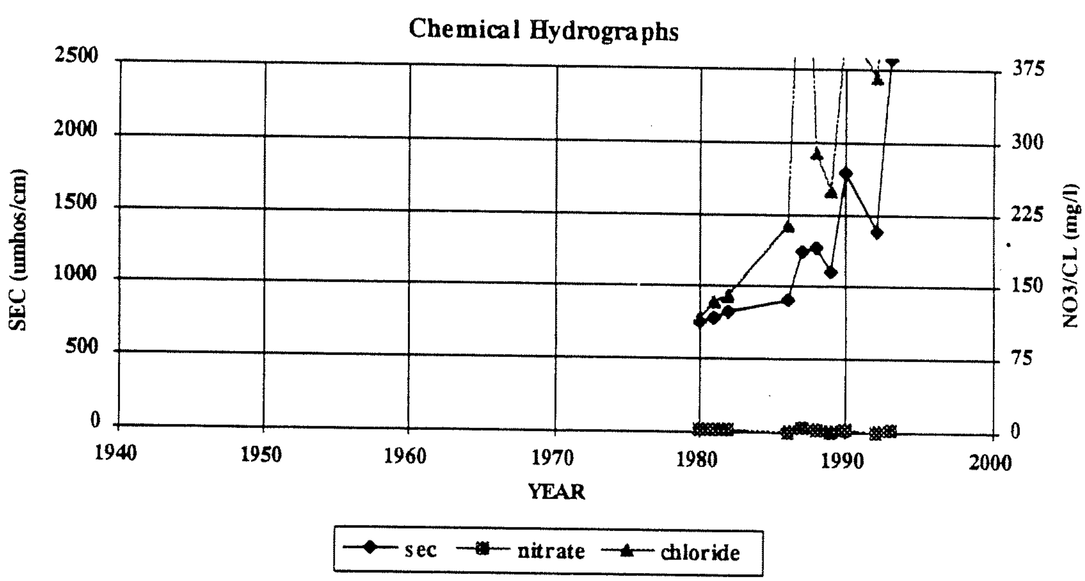
Ground Surface Elevation: 13

Perforation Rng Elevations -362 - -537

Depth: 550

Perforation Range: 375 - 550





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-06Q01

Area: PRESSURE 400

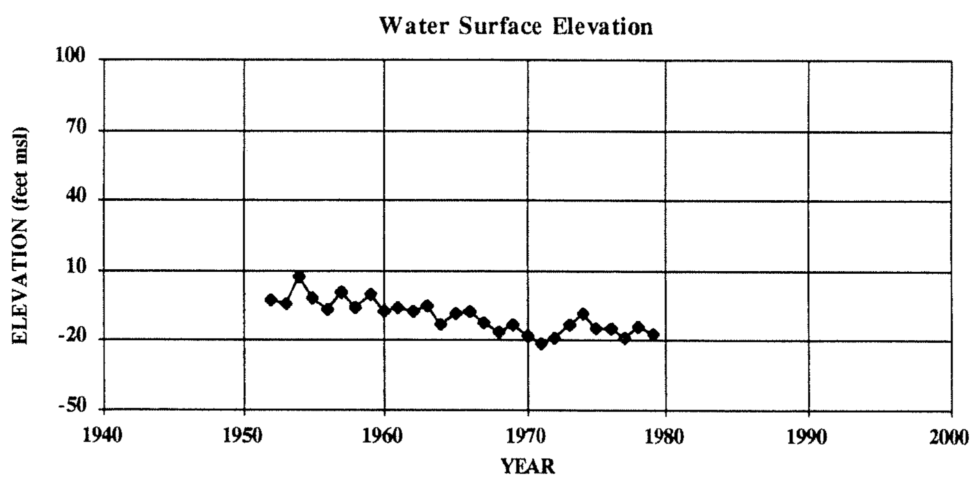
Use: Unclassified

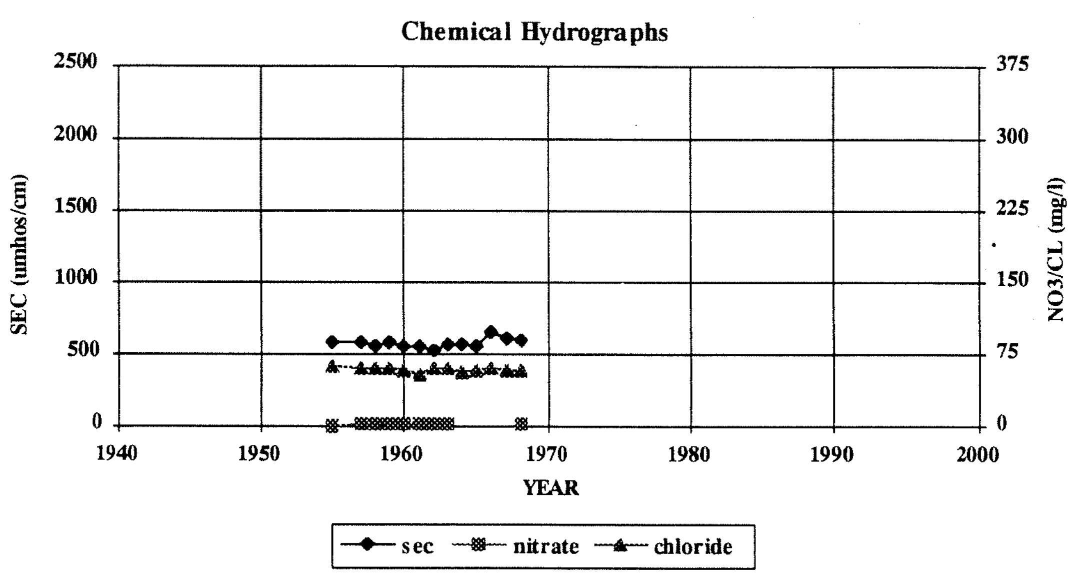
Ground Surface Elevation: 13

Perforation Rng Elevations -337 - -538

Depth: 553

Perforation Range: 350 - 551





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-19Q03

Area: PRESSURE DEEP ZONE

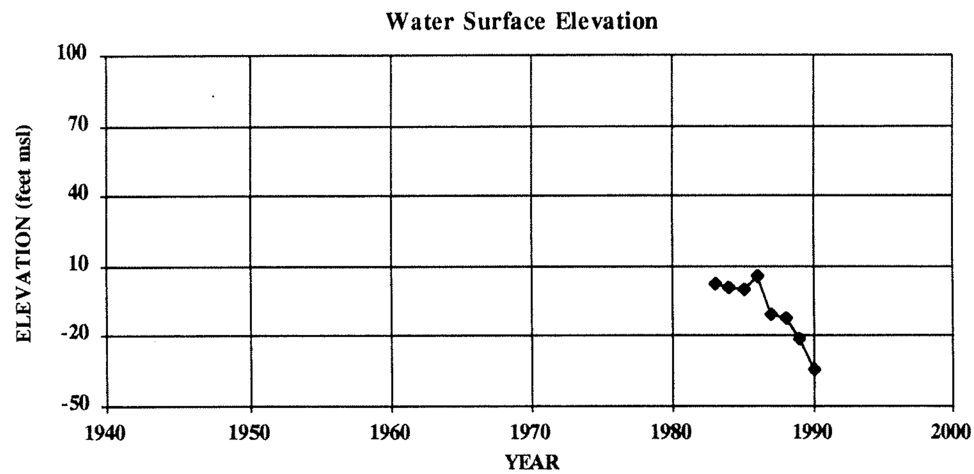
Use: IRRIGATION

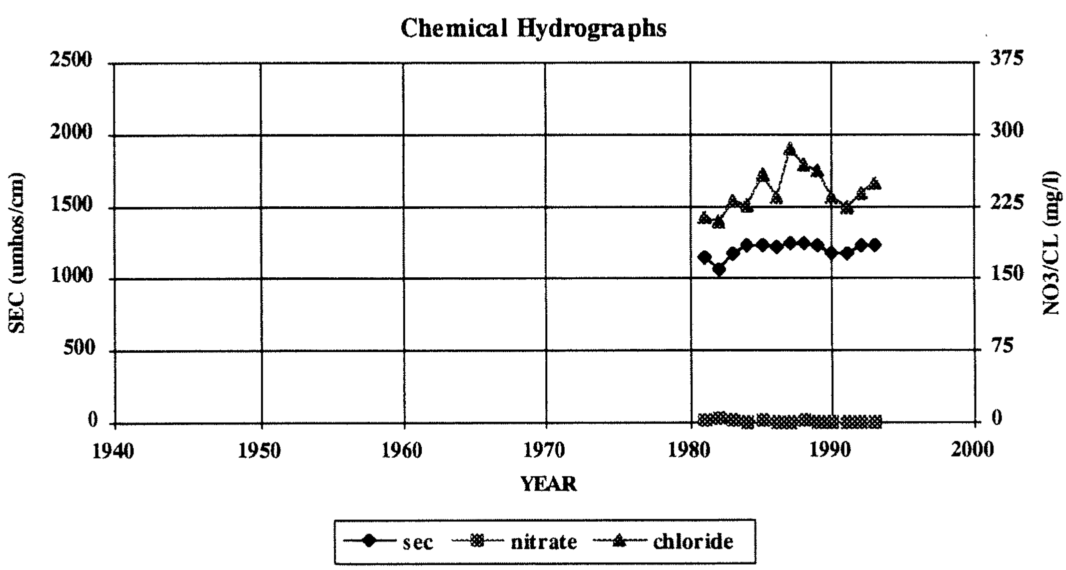
Ground Surface Elevation: 12.3

Perforation Rng Elevations -1207.7 - -1537.

Depth: 1610

Perforation Range: 1220 - 1550





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/02E-06L01

Area: PRESSURE DEEP ZONE

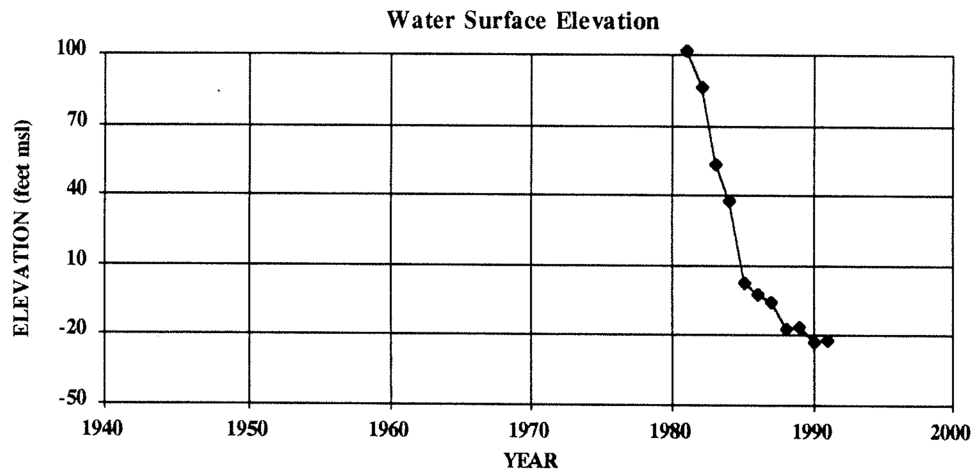
Use: IRRIGATION

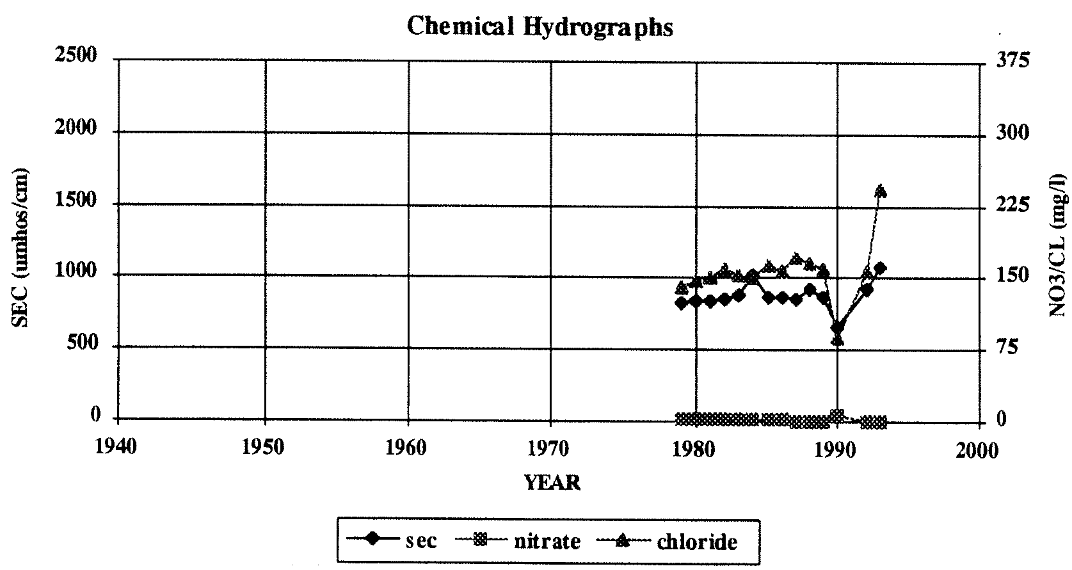
Ground Surface Elevation: 10

Perforation Rng Elevations -850 - -1530

Depth: 1560

Perforation Range: 860 - 1540





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-16D01

Area: MORO COJO

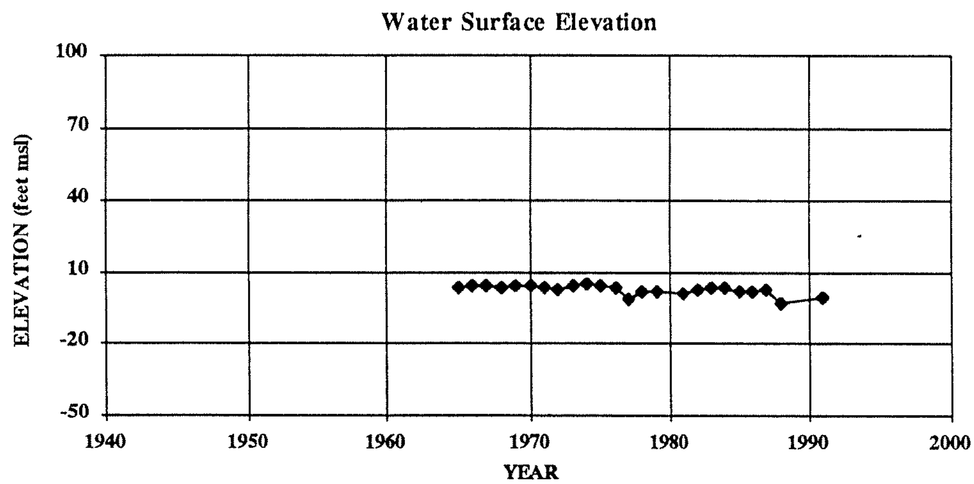
Use: IRRIGATION

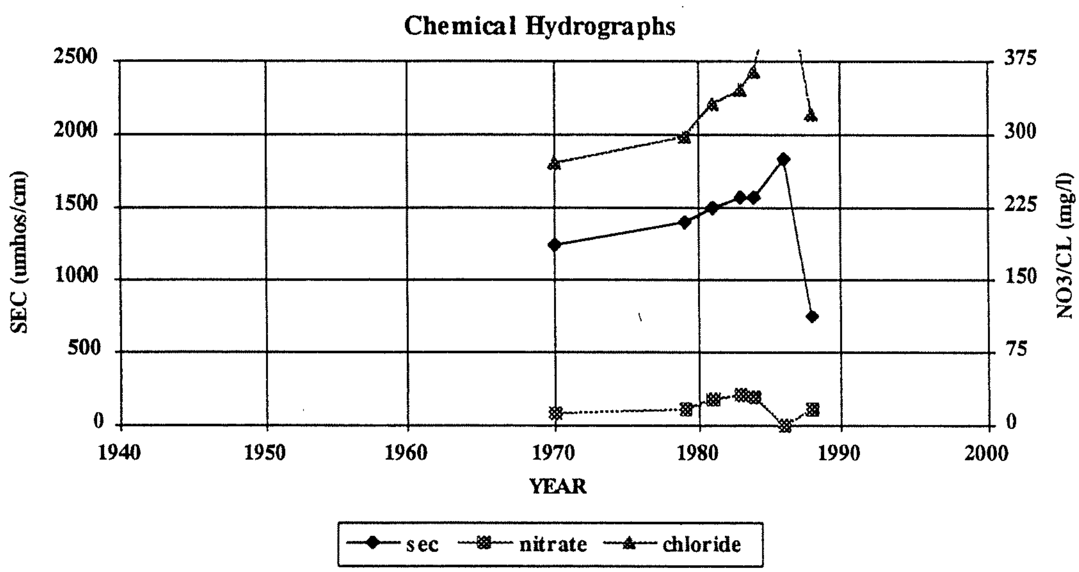
Ground Surface Elevation: 27

Perforation Rng Elevations -97 - -193

Depth: 220

Perforation Range: 124 - 220





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-16E01

Area: MORO COJO

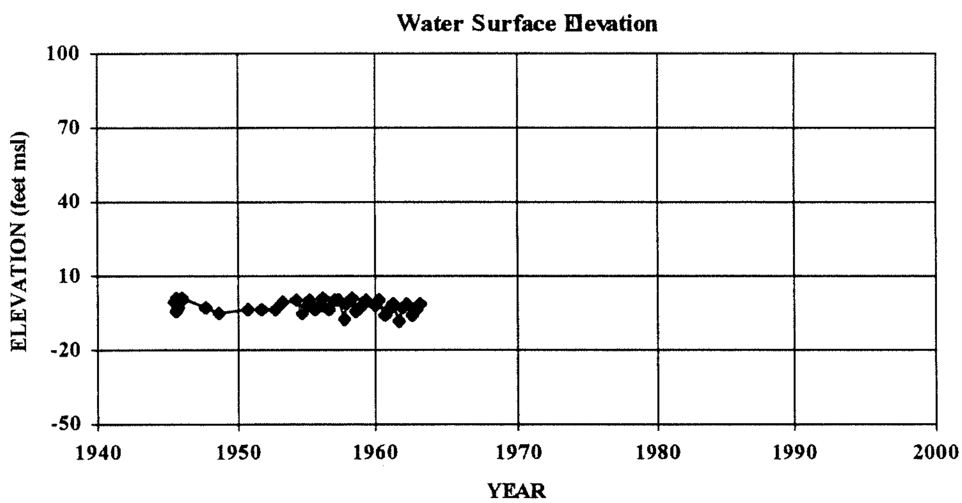
Use: IRRIGATION

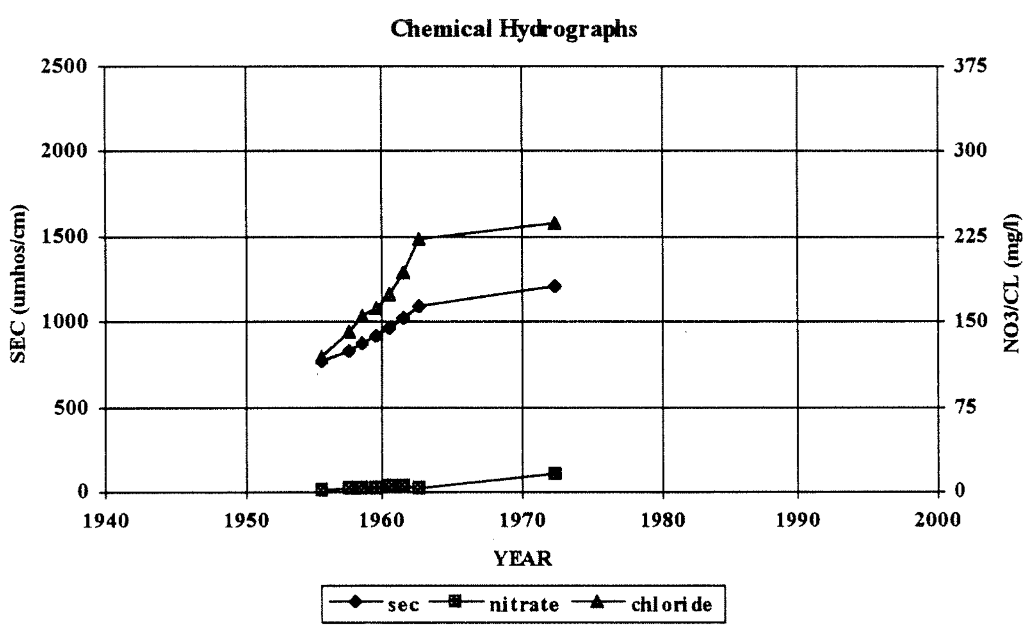
Ground Surface Elevation: 20

Perforation Rng Elevations: - No Data

Depth: 174

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-17H03

Area: MORO COJO

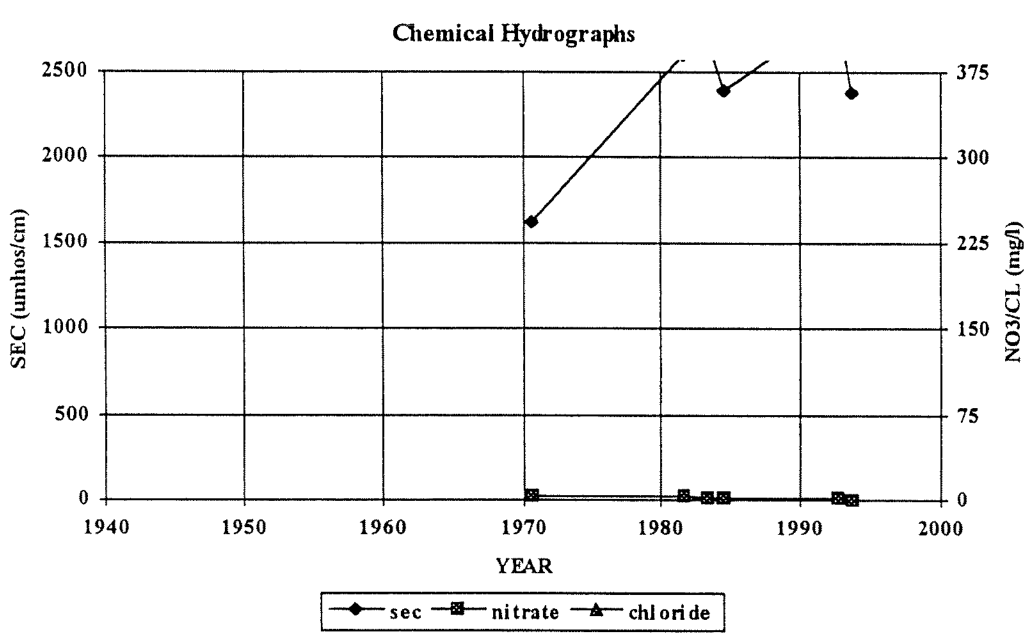
Use: IRRIGATION

Ground Surface Elevation: No Data

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data



North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-17R01

Area: MORO COJO

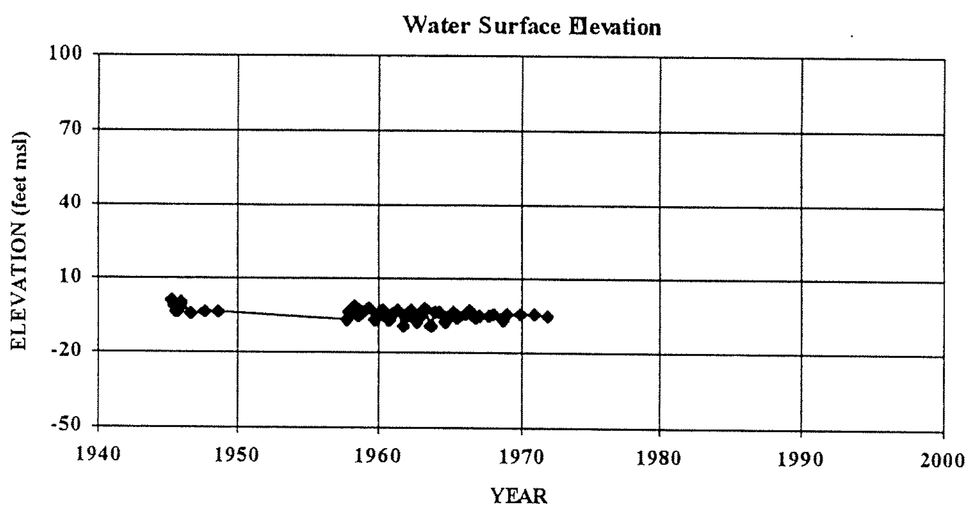
Use: IRRIGATION

Ground Surface Elevation: 16

Perforation Rng Elevations: - No Data

Depth: No Data

Perforation Range: - No Data



North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/02E-36J01

Area: EAST SIDE

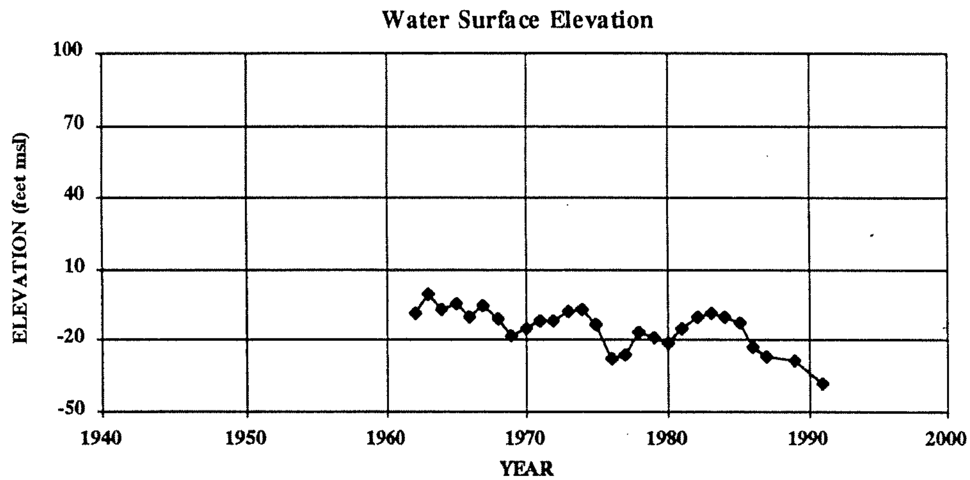
Use: IRRIGATION

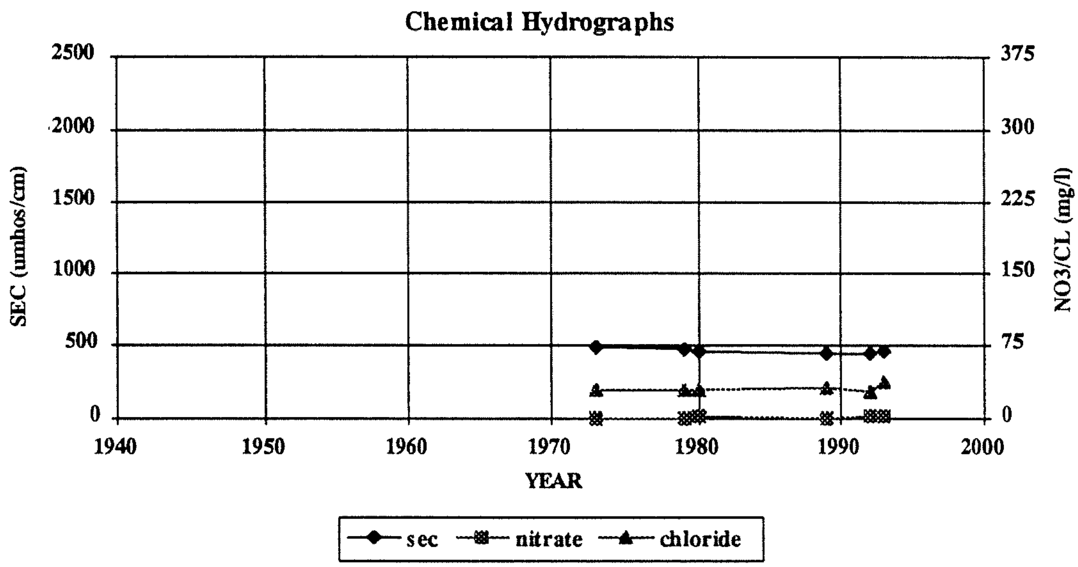
Ground Surface Elevation: 15

Perforation Rng Elevations -192 - -518

Depth: 580

Perforation Range: 207 - 533





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 13S/03E-35N01

Area: EAST SIDE

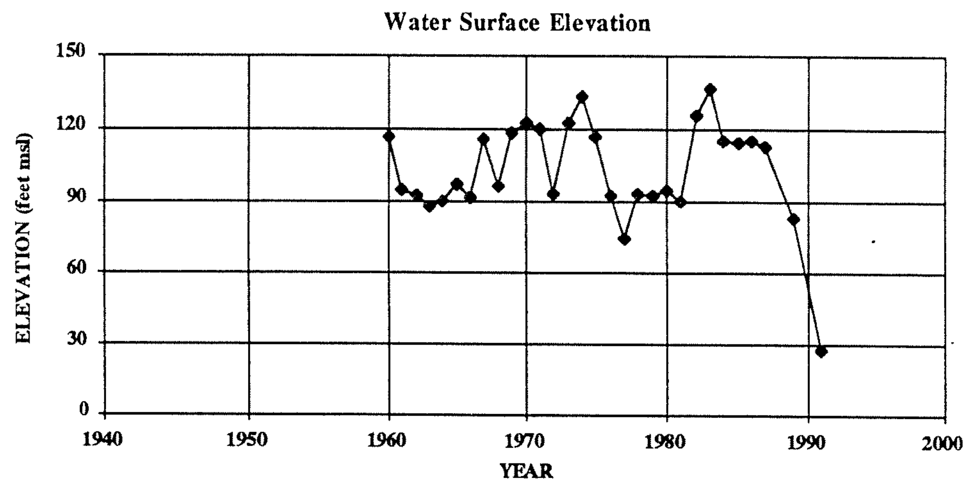
Use: IRRIGATION

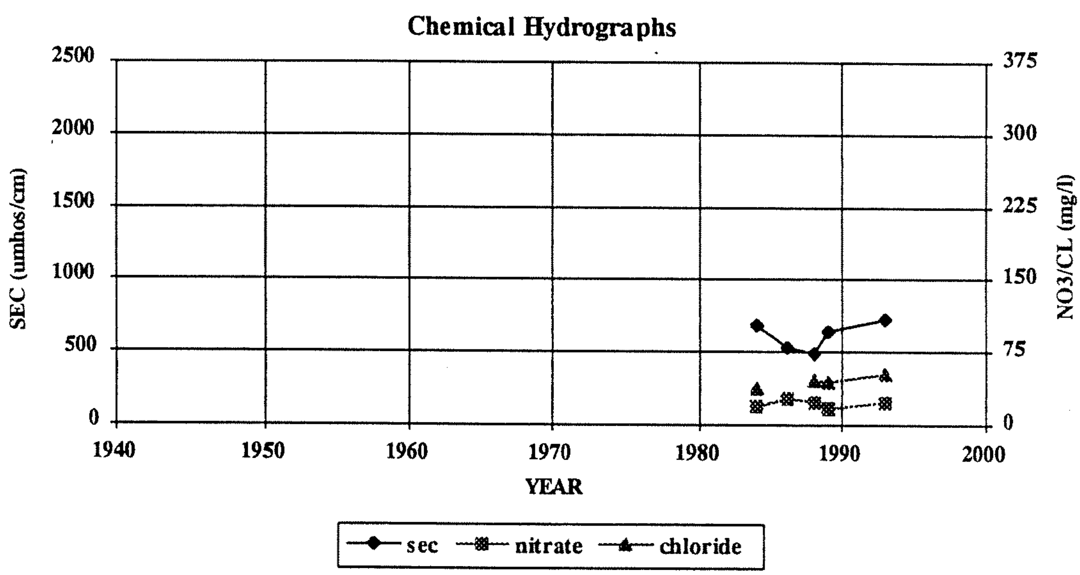
Ground Surface Elevation: 192

Perforation Rng Elevations -17 - -513

Depth: 800

Perforation Range: 209 - 705





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/03E-02E03

Area: EAST SIDE

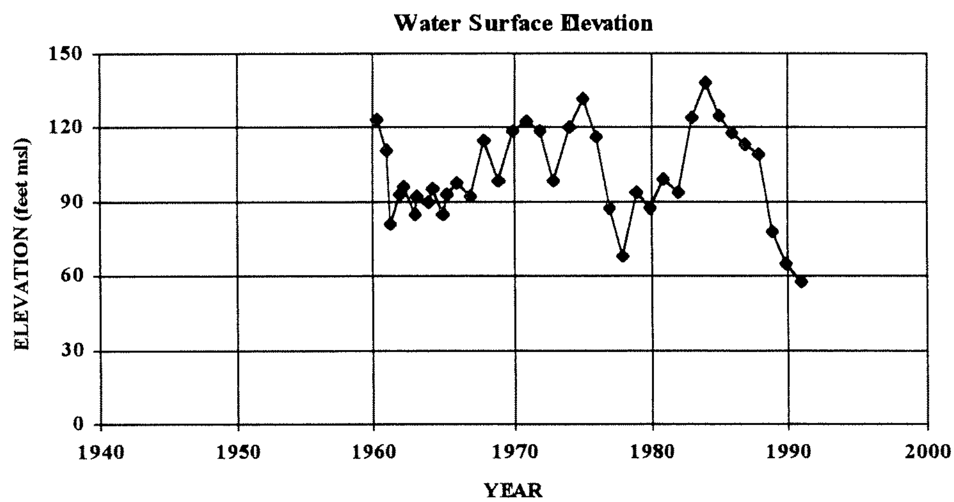
Use: IRRIGATION

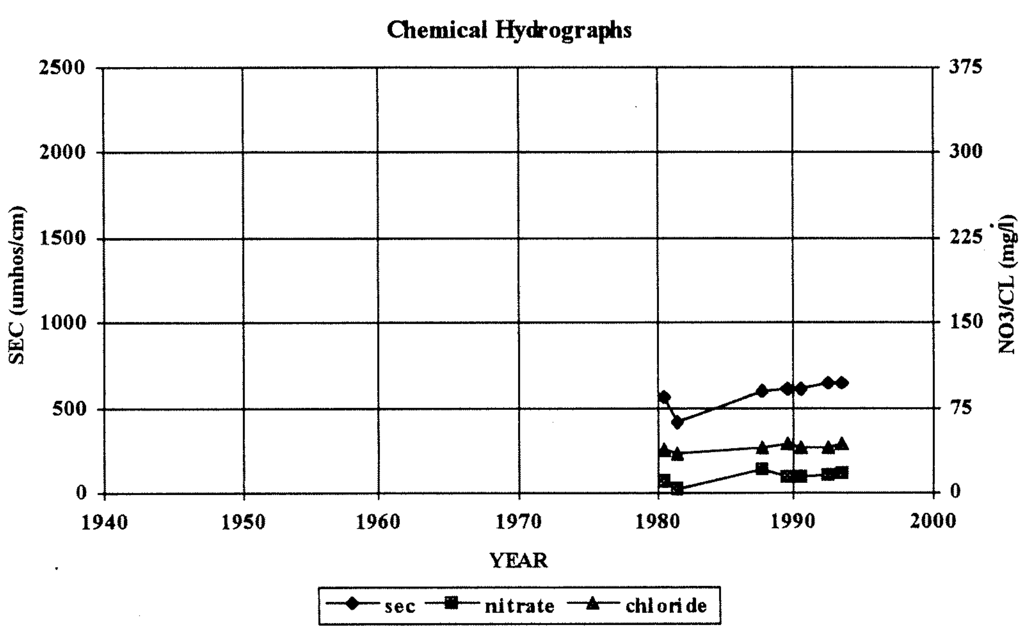
Ground Surface Elevation: 181

Perforation Rng Elevations: - No Data

Depth: 534

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/03E-03K01

Area: EAST SIDE

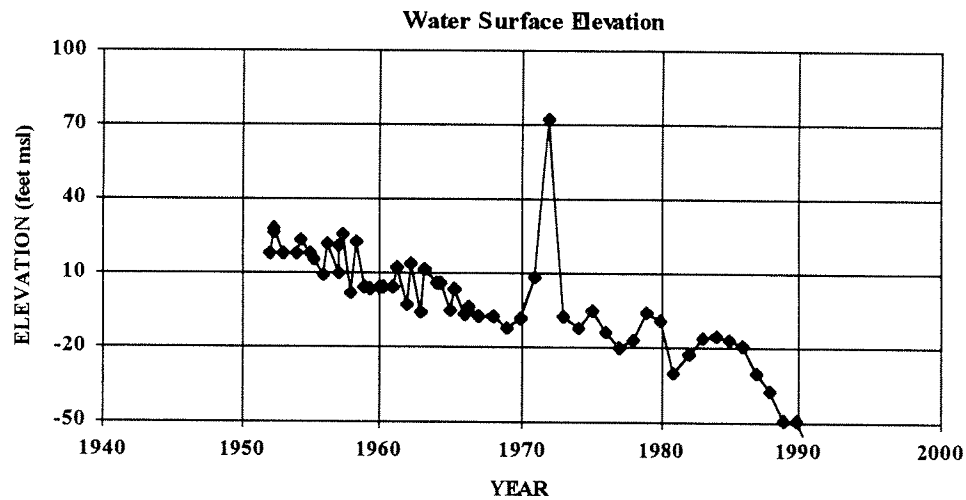
Use: IRRIGATION

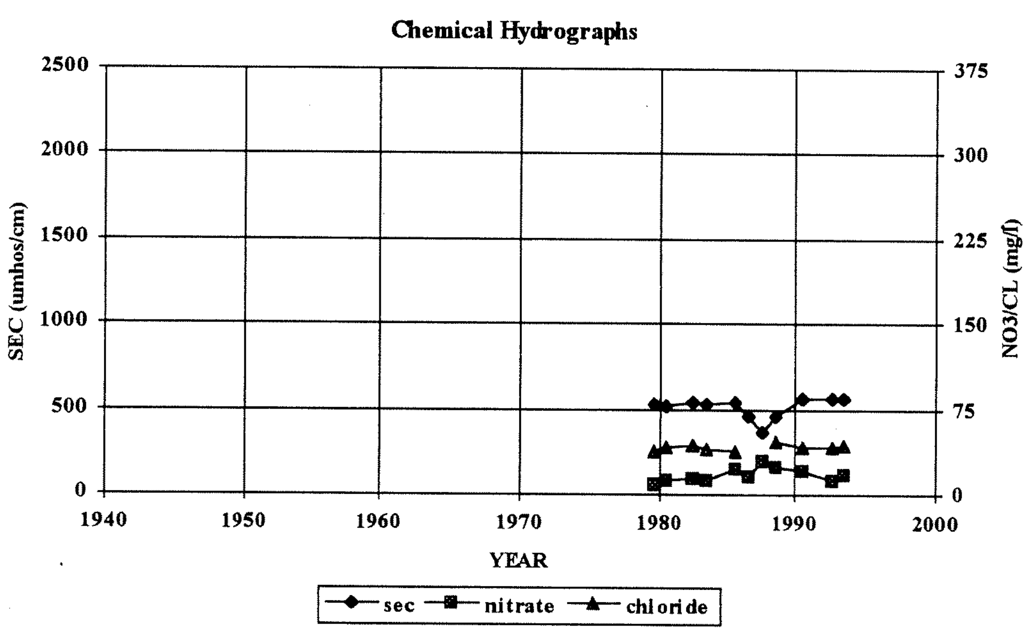
Ground Surface Elevation: 168.8

Perforation Rng Elevations: - No Data

Depth: 668

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/03E-04E01

Area: EAST SIDE

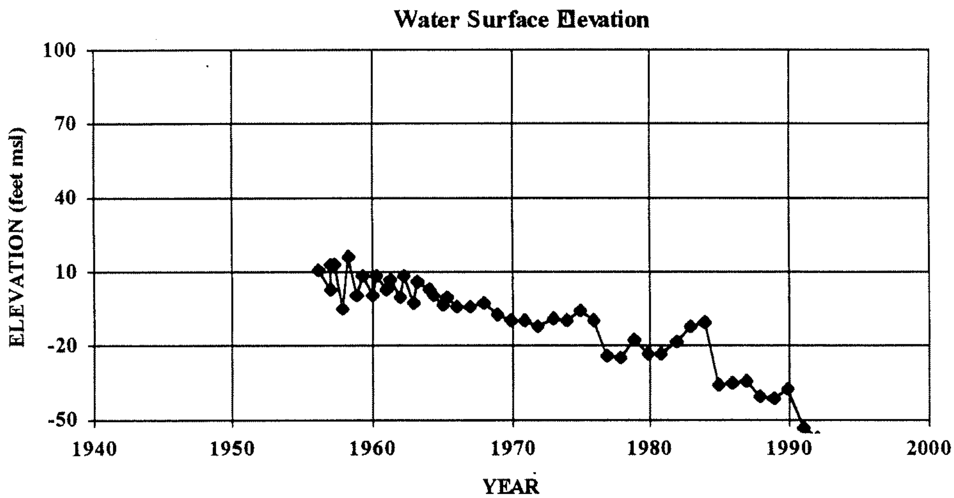
Use: IRRIGATION

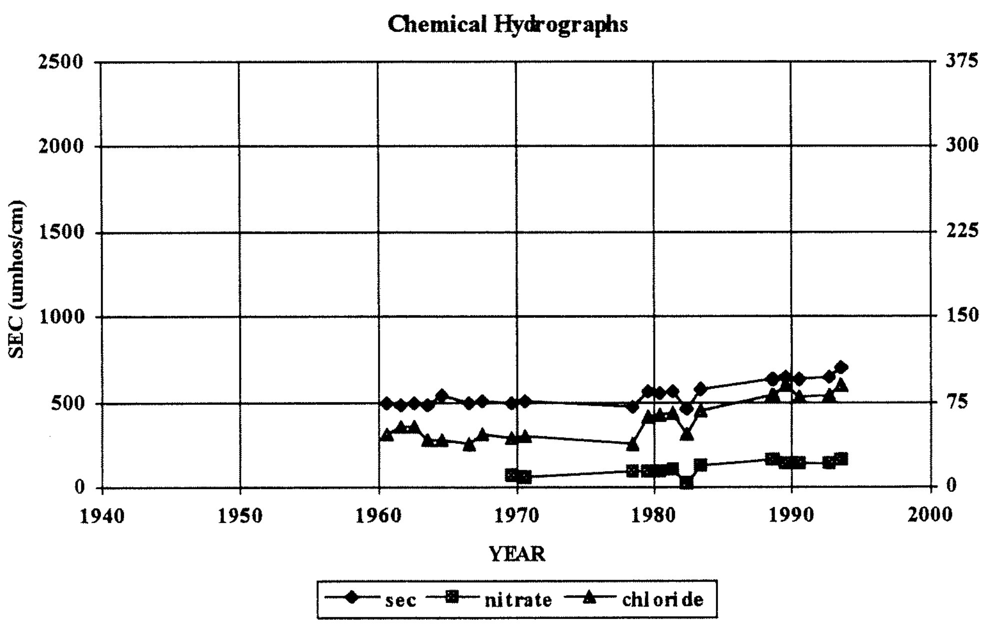
Ground Surface Elevation: 135.6

Perforation Rng Elevations: - No Data

Depth: 466

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/03E-04N01

Area: EAST SIDE

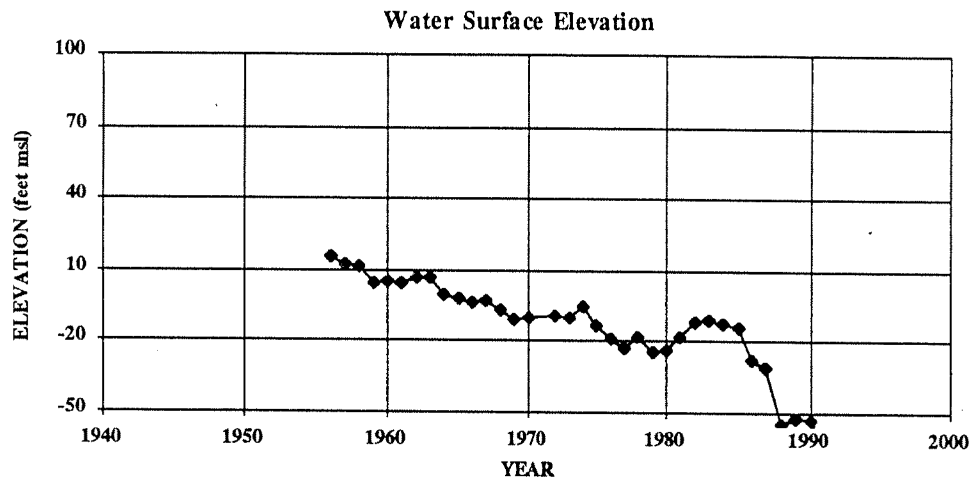
Use: IRRIGATION

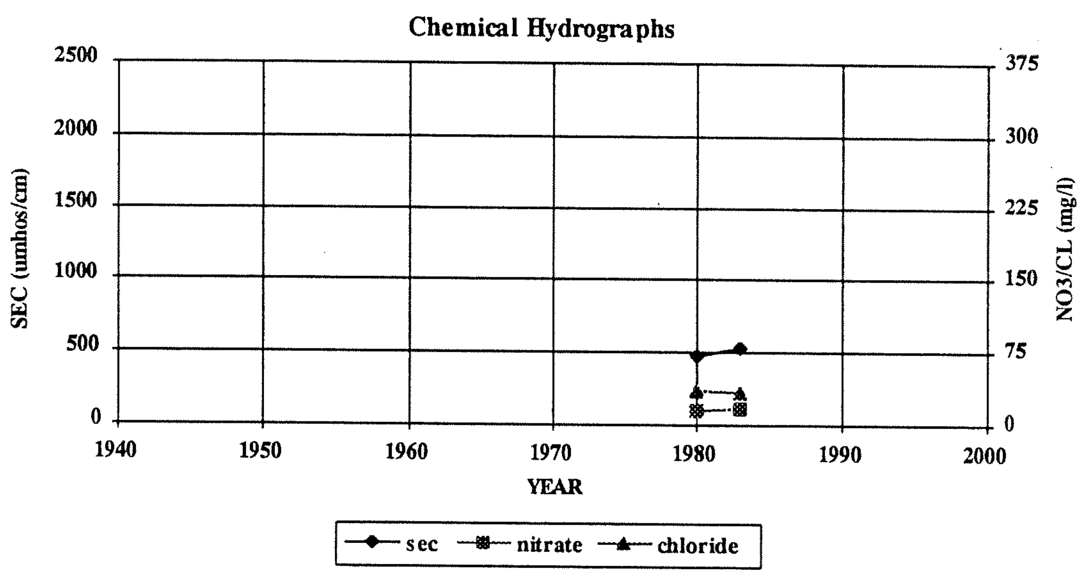
Ground Surface Elevation: 135.3

Perforation Rng Elevations -54.7 - -224.7

Depth: 465

Perforation Range: 190 - 360





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/03E-05B02

Area: EAST SIDE

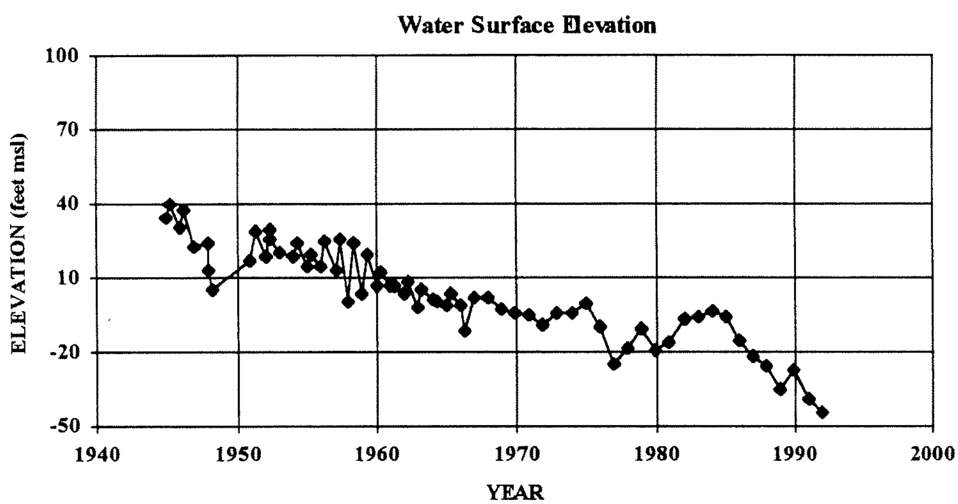
Use: IRRIGATION

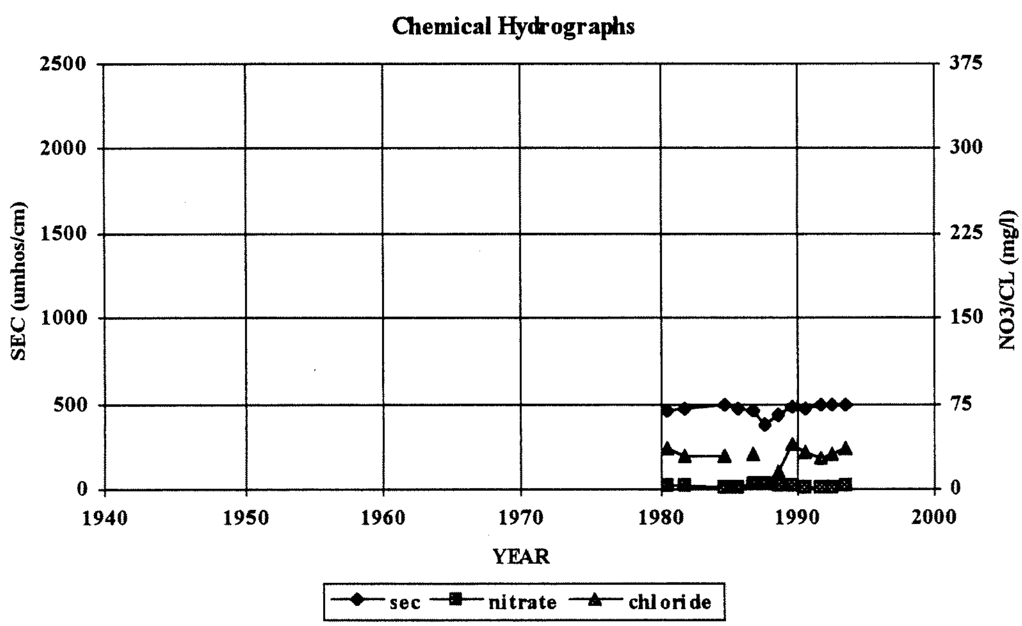
Ground Surface Elevation: 120

Perforation Rng Elevations: - No Data

Depth: 550

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/03E-06L01

Area: EAST SIDE

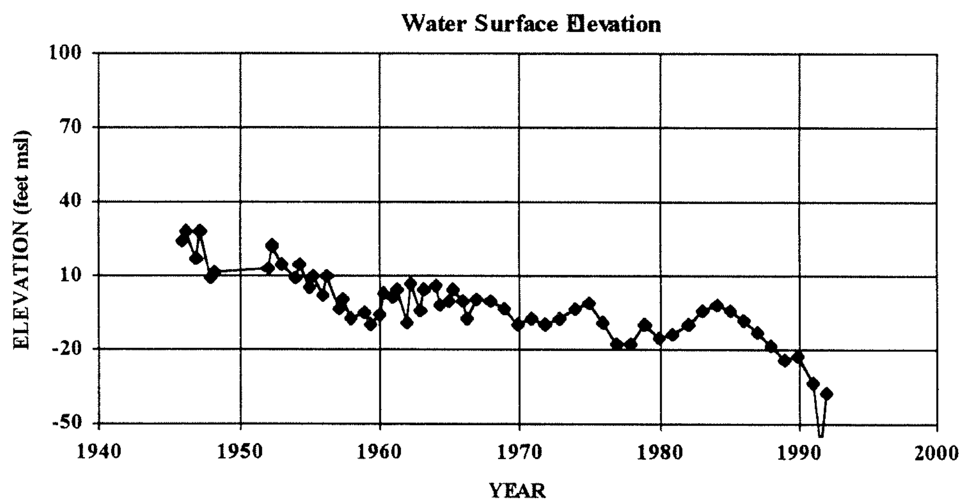
Use: IRRIGATION

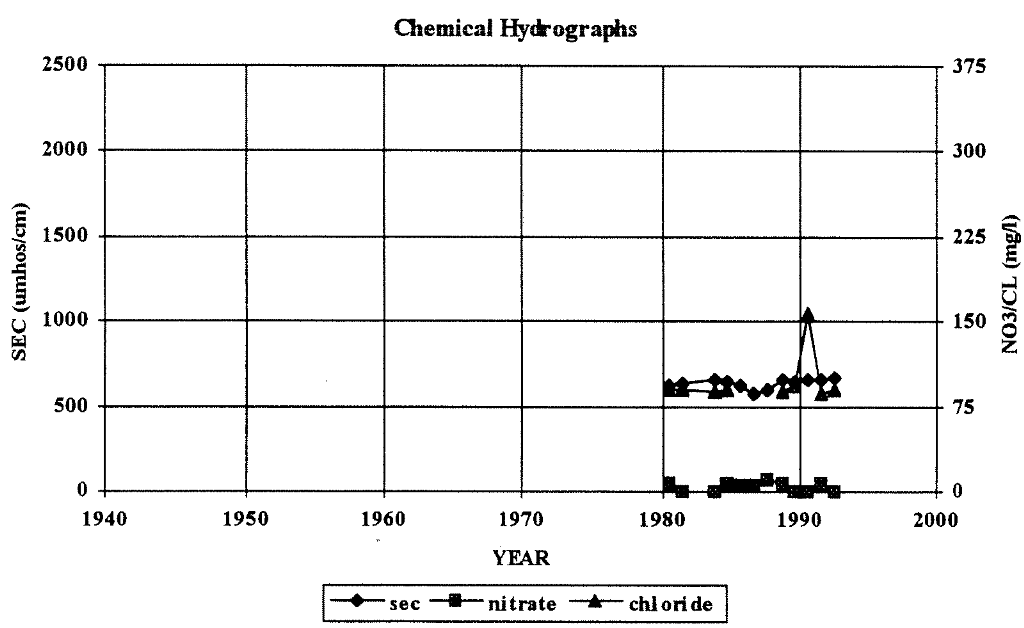
Ground Surface Elevation: 78

Perforation Rng Elevations: - No Data

Depth: 402

Perforation Range: - No Data





North Monterey County Hydrogeologic Study - Hydrographs

State Well No.: 14S/03E-06L02

Area: EAST SIDE

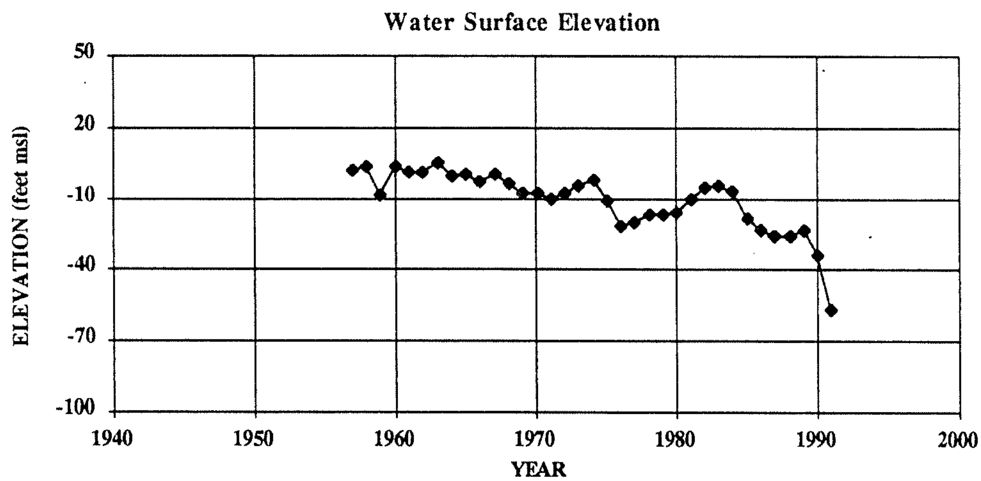
Use: IRRIGATION

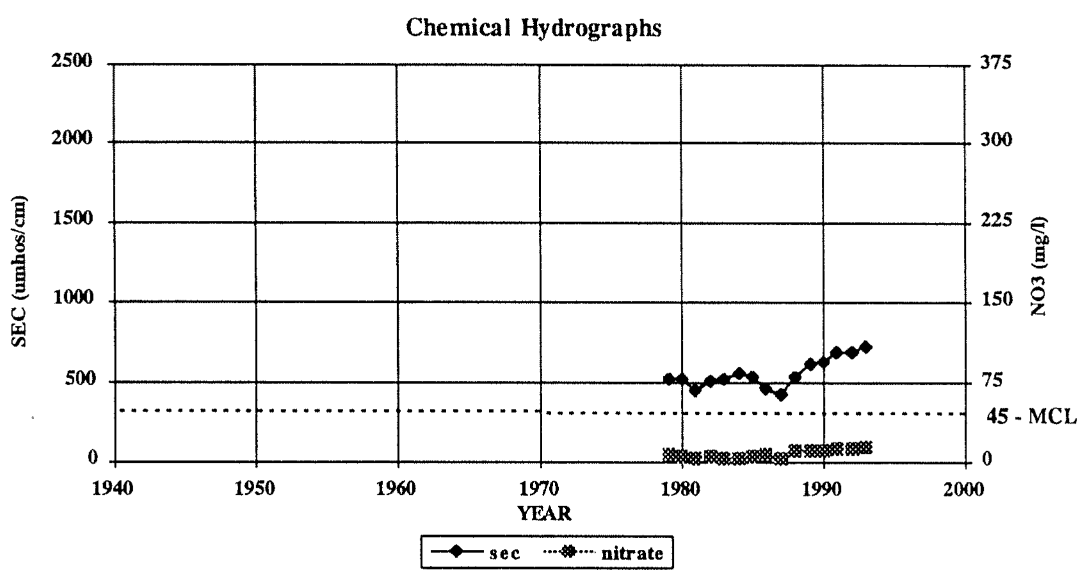
Ground Surface Elevation: 80

Perforation Rng Elevations -130 - -540

Depth: 650

Perforation Range: 210 - 620





APPENDIX E
WATER QUALITY DATA

Monterey County Chemistry Laboratory
State Certified Lab #1395
1270 Natividad Road
Salinas, California 93906
(408) 755-4516

May 3, 1995

Water Resources Agency
855 E. Laurel Dr. (Bldg G)
P.O. Box 930
Salinas, CA 93902

Dear Water Agency:

Below are the results of analysis of 10 samples received for examination on April 19, 1995:

Sample I.D. WL05603 Client code: WRA-MISC
Other identification: WRA-MISC Sample site: 135/02E-14E01
Sample collector: ROBERT MARLEY
Sample collection date: 04/19/95 Time: 11:27
Lab submittal date: 04/19/95 Time: 16:00

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Nitrate	mg/l	12	1
Chloride	mg/l	54	1.0
Conductivity	umhos at 25 C	357	1
pH		7.1	
Alkalinity	mg/l, CaCO3	66	10
Sulfate	mg/l	6	0.5
Calcium	mg/l	16	1
Magnesium	mg/l	10	1
Sodium	mg/l	32	1
Potassium	mg/l	1.3	0.1

Sample I.D. WL05604 Client code: WRA-MISC
Other identification: WRA-MISC Sample site: 135/02E-14C50
Sample collector: ROBERT MARLEY
Sample collection date: 04/19/95 Time: 11:40
Lab submittal date: 04/19/95 Time: 16:00

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Nitrate	mg/l	6	1
Chloride	mg/l	46	1.0
Conductivity	umhos at 25 C	366	1
pH		7.2	
Alkalinity	mg/l, CaCO3	102	10
Sulfate	mg/l	2	0.5
Calcium	mg/l	23	1
Magnesium	mg/l	9	1

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Sodium	mg/l	31	1
Potassium	mg/l	1.2	0.1

Sample I.D. WL05605 Client code: WRA-MISC
Other identification: WRA-MISC Sample site: 135/02E-11N01
Sample collector: ROBERT MARLEY
Sample collection date: 04/19/95 Time: 12:05
Lab submittal date: 04/19/95 Time: 16:00

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Nitrate	mg/l	36	1
Chloride	mg/l	216	1.0
Conductivity	umhos at 25 C	979	1
pH		6.8	
Alkalinity	mg/l, CaCO3	80	10
Sulfate	mg/l	18	0.5
Calcium	mg/l	36	1
Magnesium	mg/l	24	1
Sodium	mg/l	93	1
Potassium	mg/l	1.9	0.1

Sample I.D. WL05606 Client code: WRA-MISC
Other identification: WRA-MISC Sample site: 135/02E-11D50
Sample collector: ROBERT MARLEY
Sample collection date: 04/19/95 Time: 12:30
Lab submittal date: 04/19/95 Time: 16:00

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Nitrate	mg/l	2	1
Chloride	mg/l	62	1.0
Conductivity	umhos at 25 C	445	1
pH		7.6	
Alkalinity	mg/l, CaCO3	114	10
Sulfate	mg/l	5	0.5
Calcium	mg/l	25	1
Magnesium	mg/l	12	1
Sodium	mg/l	37	1
Potassium	mg/l	1.5	0.1

Sample I.D. WL05607 Client code: WRA-MISC
Other identification: WRA-MISC Sample site: 135/02E-03R50
Sample collector: ROBERT MARLEY
Sample collection date: 04/19/95 Time: 12:40
Lab submittal date: 04/19/95 Time: 16:00

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Nitrate	mg/l	9	1
Chloride	mg/l	148	1.0
Conductivity	umhos at 25 C	728	1
pH		7.5	
Alkalinity	mg/l, CaCO3	114	10
Sulfate	mg/l	2	0.5
Calcium	mg/l	34	1
Magnesium	mg/l	25	1
Sodium	mg/l	54	1
Potassium	mg/l	2.1	0.1

Sample I.D. WL05608 Client code: WRA-MISC
Other identification: WRA-MISC Sample site: 135/02E-02T52
Sample collector: ROBERT MARLEY
Sample collection date: 04/19/95 Time: 12:55
Lab submittal date: 04/19/95 Time: 16:00

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Nitrate	**mg/l**	**82**	**1**
Chloride	mg/l	104	1.0
Conductivity	umhos at 25 C	698	1
pH		6.9	
Alkalinity	mg/l, CaCO3	68	10
Sulfate	mg/l	34	0.5
Calcium	mg/l	20	1
Magnesium	mg/l	22	1
Sodium	mg/l	65	1
Potassium	mg/l	1.3	0.1

Summary of specification violations or warnings:

Analyte: Nitrate
Upper specification value: 45 Result: 82

Sample I.D. WL05609 Client code: WRA-MISC
Other identification: WRA-MISC Sample site: 135/02E-03H01
Sample collector: ROBERT MARLEY
Sample collection date: 04/19/95 Time: 13:17
Lab submittal date: 04/19/95 Time: 16:00

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Nitrate	mg/l	12	1
Chloride	mg/l	40	1.0
Conductivity	umhos at 25 C	290	1
pH		7.5	
Alkalinity	mg/l, CaCO3	68	10
Sulfate	mg/l	5	0.5
Calcium	mg/l	11	1
Magnesium	mg/l	9	1
Sodium	mg/l	26	1
Potassium	mg/l	1.0	0.1

Sample I.D. WL05610 Client code: WRA-MISC
Other identification: WRA-MISC Sample site: 125/02E-34Q01
Sample collector: ROBERT MARLEY
Sample collection date: 04/19/95 Time: 13:30
Lab submittal date: 04/19/95 Time: 16:00

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Nitrate	**mg/l**	**79**	1
Chloride	mg/l	88	1.0
Conductivity	umhos at 25 C	618	1
pH		7.4	
Alkalinity	mg/l, CaCO3	76	10
Sulfate	mg/l	19	0.5
Calcium	mg/l	24	1
Magnesium	mg/l	22	1
Sodium	mg/l	49	1
Potassium	mg/l	1.5	0.1

Summary of specification violations or warnings:

Analyte: Nitrate
Upper specification value: 45 Result: 79

Sample I.D. WL05611 Client code: WRA-MISC
Other identification: WRA-MISC Sample site: 125/02E-32C01
Sample collector: ROBERT MARLEY
Sample collection date: 04/19/95 Time: 14:45
Lab submittal date: 04/19/95 Time: 16:00

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Nitrate	mg/l	11	1
Chloride	mg/l	57	1.0
Conductivity	umhos at 25 C	691	1
pH		7.6	
Alkalinity	mg/l, CaCO3	242	10
Sulfate	mg/l	47	0.5
Calcium	mg/l	40	1
Magnesium	mg/l	34	1
Sodium	mg/l	43	1
Potassium	mg/l	2.1	0.1

Sample I.D. WL05612 Client code: WRA-MISC
Other identification: WRA-MISC Sample site: 125/02E-33N50
Sample collector: ROBERT MARLEY
Sample collection date: 04/19/95 Time: 15:00
Lab submittal date: 04/19/95 Time: 16:00

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Nitrate	**mg/l**	**127**	**1**
Chloride	mg/l	240	1.0
Conductivity	umhos at 25 C	2145	1
pH		7.3	
Alkalinity	mg/l, CaCO3	270	10
Sulfate	**mg/l**	**425**	**0.5**
Calcium	mg/l	152	1
Magnesium	mg/l	104	1
Sodium	mg/l	105	1
Potassium	mg/l	4.2	0.1

Summary of specification violations or warnings:

Analyte: Nitrate
Upper specification value: 45 Result: 127

Analyte: Sulfate
Upper specification value: 250 Result: 425

Please advise should you have questions concerning these data.

Respectfully submitted,

David Holland

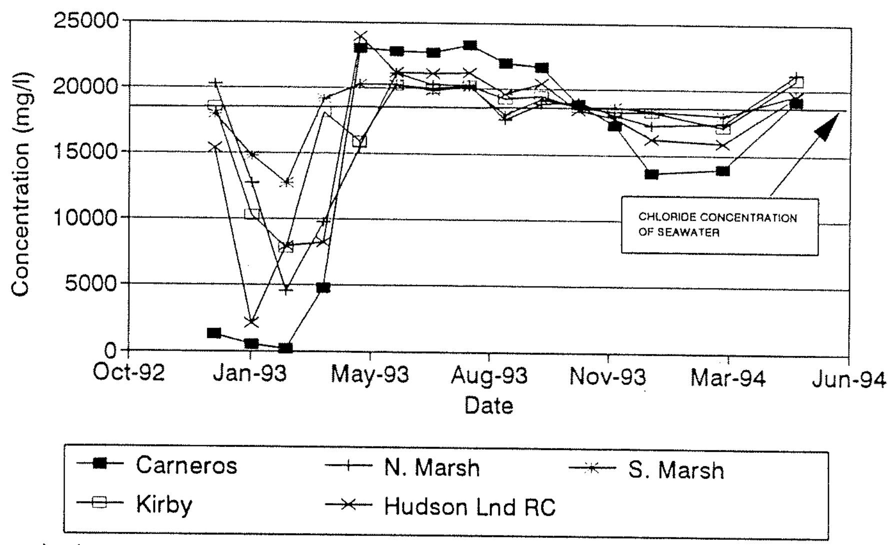
MAXIMUM NITRATE VALUES - MCWRA STUDY WELLS

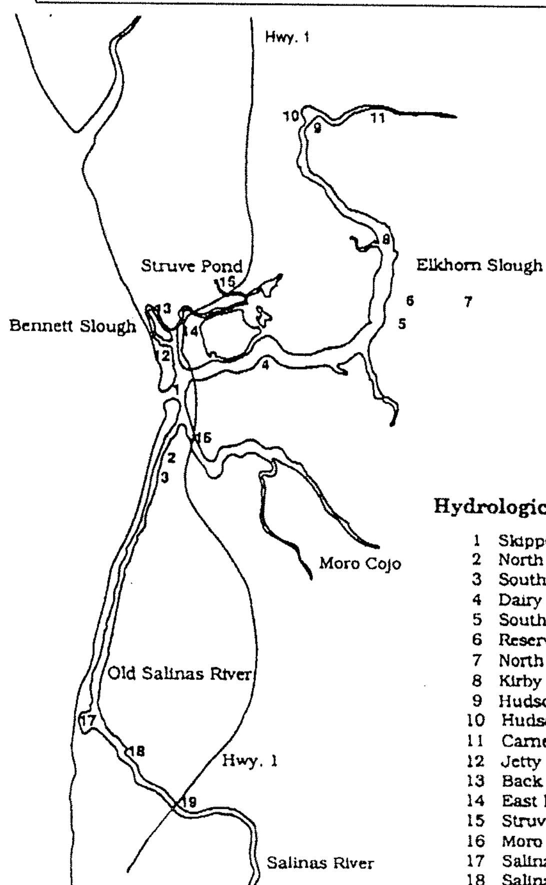
Well Ident	Subarea	SampleDate	MaxOfnitrate	sec
13S/03E-16C03	Granite Ridge	01-Sep-83	90.8	610
13S/03E-08D01	Granite Ridge	01-Jul-87	89.9	305
13S/03E-05P01	Granite Ridge	01-Jul-87	36.9	279
13S/03E-06G01	Granite Ridge	11-Sep-92	32.6	365
13S/03E-17F01	Granite Ridge	01-Jul-87	30.7	317
13S/03E-04L01	Granite Ridge	03-Oct-89	29	336
13S/03E-16C02	Granite Ridge	01-Jul-89	26	333
13S/03E-10N01	Granite Ridge	01-Jul-88	19.8	351
13S/03E-10Q01	Granite Ridge	01-Jul-80	18.6	480
13S/03E-16J02	Granite Ridge	01-Jul-84	16.4	660
13S/03E-27D01	Granite Ridge	02-Oct-86	6.8	420
12S/02E-25N01	Highlands	01-Jul-85	155.1	520
13S/03E-17B01	Highlands	01-Jul-85	139.5	1145
13S/02E-02C01	Highlands	01-Jul-87	90.9	318
12S/02E-25J01	Highlands	01-Jul-90	83	861
13S/02E-01K01	Highlands	23-Aug-93	80	297
12S/02E-14Q01	Highlands	01-Jul-87	73	328
12S/03E-31E01	Highlands	25-Aug-87	63.4	340
13S/02E-27M01	Highlands	01-Jul-89	55	1320
12S/03E-30A01	Highlands	01-Jul-87	49.8	713
13S/03E-20B02	Highlands	01-Jul-87	46.8	328
12S/03E-31G01	Highlands	05-Oct-89	46	592
13S/02E-27P01	Highlands	24-Jun-92	39.5	1637
12S/02E-14N01	Highlands	01-Jul-82	36.3	320
13S/03E-17B02	Highlands	11-Sep-92	35.2	541
13S/03E-20B01	Highlands	01-Jul-86	32.2	392
12S/03E-19M01	Highlands	01-Jul-87	29.8	418
12S/02E-13N01	Highlands	01-Jul-86	29.2	251
13S/02E-12K01	Highlands	17-Aug-78	25	283
13S/02E-13N01	Highlands	24-Aug-93	21	274
12S/02E-33H01	Highlands	10-Sep-92	18.1	397
13S/03E-19H01	Highlands	01-Jul-90	18	357
13S/02E-10J01	Highlands	02-Oct-86	15.4	555
12S/03E-33H01	Highlands	01-Jul-89	15	361
13S/03E-20P01	Highlands	01-Jul-87	13.8	342
13S/03E-29A01	Highlands	01-Sep-65	13	491
13S/02E-10G02	Highlands	04-Sep-85	8.4	535
13S/02E-03Q01	Highlands	01-Jul-84	5.3	1350
13S/02E-26C01	Highlands	01-Sep-83	3.1	480
13S/02E-26L01	Highlands	01-Jul-83	3.1	480
13S/02E-15M01	Highlands	24-Aug-87	3.1	380
13S/02E-27L01	Highlands	05-Aug-87	2.9	438
13S/02E-14R01	Highlands	19-Jun-57	2.4	1150
12S/03E-29H01	Highlands	13-Jul-61	0.9	583
12S/03E-18E04	Pajaro	04-Oct-93	196	1528
12S/02E-12K01	Pajaro	01-Jul-81	166.1	1280
12S/02E-15E01	Pajaro	11-Oct-89	93	1436
12S/02E-17R01	Pajaro	01-Jul-80	43.9	780
12S/03E-07J02	Pajaro	18-Sep-92	34.1	1367
12S/03E-18D01	Pajaro	01-Jul-81	23	1390
12S/02E-10J02	Pajaro	01-Jul-90	20	1266
12S/02E-12E01	Pajaro	03-Sep-75	14	1200
12S/03E-08C01	Pajaro	01-Jul-82	9.7	1455
12S/02E-19A02	Pajaro	06-Apr-93	7.9	602
12S/03E-08C02	Pajaro	04-Sep-85	3.1	1105
12S/02E-12J01	Pajaro	01-Jul-80	2.9	1300
12S/02E-16H02	Pajaro	20-Aug-87	2.6	644
12S/02E-10D01	Pajaro	21-Jun-77	2.5	565
12S/02E-16Q01	Pajaro	01-Jul-90	2.5	737
12S/02E-16J01	Pajaro	03-Sep-85	2.2	760
12S/02E-16F01	Pajaro	01-Jul-81	0.9	570
12S/02E-16F01	Pajaro	03-Sep-85	0.9	730
12S/02E-16F01	Pajaro	01-Jul-87	0.9	565
12S/02E-16L01	Pajaro	26-Sep-84	0.9	755
12S/02E-16L01	Pajaro	01-Jul-82	0.9	720
12S/02E-18J01	Pajaro	11-Jun-64	0.4	494
12S/02E-18K02	Pajaro	20-May-64	0.4	452
12S/02E-19B01	Pajaro	05-Sep-62	0.2	530
12S/02E-18K03	Pajaro	26-Jul-72	0.2	483
13S/02E-06C01	Springfield	01-Jul-87	399.5	2000
12S/02E-30N01	Springfield	01-Jul-86	318.7	1126
12S/02E-31C05	Springfield	18-Sep-92	300.3	1370
13S/02E-07B04	Springfield	03-Mar-76	289	2310
13S/02E-06J03	Springfield	03-Mar-76	245	1770
13S/02E-06C04	Springfield	11-Oct-89	237	3490
13S/02E-06M02	Springfield	02-Mar-76	227	2480
12S/02E-29P01	Springfield	06-Apr-93	211	865

MAXIMUM NITRATE VALUES - MCWRA STUDY WELLS

Well Ident	Subarea	SampleDate	MaxOfnitrate	sec
13S/02E-06R01	Springfield	01-Jul-90	192	2030
13S/02E-06C03	Springfield	02-Mar-76	186	1560
12S/02E-31E01	Springfield	02-Mar-76	173	1510
13S/02E-06E02	Springfield	01-Jul-83	157.3	4500
12S/02E-32N01	Springfield	06-Apr-93	147	922
13S/02E-06E03	Springfield	10-Oct-89	143	3430
12S/02E-31C02	Springfield	24-Sep-79	131.8	750
12S/02E-31K01	Springfield	16-Sep-92	128.8	1975
13S/02E-05M01	Springfield	01-Jul-80	125.8	2400
12S/02E-32K01	Springfield	02-Mar-76	122	818
12S/02E-31A02	Springfield	01-Jul-80	99.2	650
12S/02E-29L01	Springfield	01-Mar-76	96	485
12S/02E-29N01	Springfield	07-Oct-88	83.4	632
13S/02E-05C02	Springfield	13-Sep-93	81	866
13S/02E-04E02	Springfield	03-Mar-76	70	2010
12S/02E-32C01	Springfield	11-Oct-89	63	667
12S/02E-31C01	Springfield	23-Jul-62	59	495
13S/02E-07R01	Springfield	01-Jul-80	58.5	3600
12S/02E-29C02	Springfield	03-Mar-76	49	1180
12S/02E-31B01	Springfield	02-Mar-76	48	633
13S/02E-07B01	Springfield	24-Jul-58	42	2895
12S/02E-31G01	Springfield	16-Aug-57	29	382
12S/02E-29R01	Springfield	10-Oct-89	22	526
13S/02E-06E01	Springfield	16-Aug-57	13	1170
13S/02E-06F03	Springfield	24-Jul-58	12	1198
13S/02E-07B02	Springfield	16-Aug-57	12	2900
13S/02E-06G01	Springfield	10-Sep-91	11	1649
13S/02E-05B01	Springfield	02-Mar-76	7.6	783
12S/02E-29A01	Springfield	11-Oct-89	7.1	713
13S/02E-04F01	Springfield	01-Jul-87	6.3	650
12S/02E-29J03	Springfield	03-Mar-76	3.5	1010
12S/02E-20K02	Springfield	09-Aug-78	3.2	680
12S/02E-31Q01	Springfield	03-Mar-76	2.8	1140
12S/02E-29L02	Springfield	16-Aug-57	2.7	578
12S/02E-21L01	Springfield	01-Mar-76	2.5	965
12S/02E-30P01	Springfield	28-Jul-58	2	525
12S/02E-31A01	Springfield	25-Jul-58	2	648
12S/02E-30M02	Springfield	01-Jul-88	1.5	637
12S/02E-31D01	Springfield	01-Mar-76	1.5	534
12S/02E-20K01	Springfield	21-Sep-79	0.9	740
12S/02E-20N01	Springfield	16-Aug-57	0.8	598
13S/02E-06P01	Springfield	20-May-64	0.7	1370
12S/02E-29E01	Springfield	13-Jul-60	0.4	580
12S/02E-30F02	Springfield	16-Aug-57	0.4	516
13S/02E-06D01	Springfield	28-Jul-58	0.2	1470
13S/02E-05K01	Springfield	02-Mar-76	0.2	724
12S/02E-19M01	Springfield	05-Sep-62	0.2	700
12S/02E-30E01	Springfield	27-Sep-61	0.2	530
12S/02E-30E01	Springfield	23-Jul-62	0.2	13500
12S/02E-30D01	Springfield	01-Mar-76	0.2	2560

CHLORIDE ION CONCENTRATIONS (mg/l)
Elkhorn Slough





Hydrologic Sampling Site Locations

1 Skipper's Dock
2 North Potrero Road
3 South Potrero Road
4 Dairy Dock
5 South Marsh
6 Reserve non flushed
7 North Marsh
8 Kirby Park
9 Hudson's Landing Culverts
10 Hudson's Landing Pilings
11 Carneros Creek
12 Jetty Road
13 Back Bennett Slough
14 East Bennett Slough
15 Struve Pond
16 Moro Cojo Slough
17 Salinas River Lagoon
18 Salinas River Mid
19 Salinas River Bridge

WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: 01/30/94

(Units in mg/l unless otherwise noted.)

	LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
1	SKIPPERS	3	<0.1	0.04	18600	48300
2	RES BRG	3	<0.1	0.04	18700	48000
3	S MARSH	2	<0.1	0.04	18300	47200
4	N MARSH	4	0.4	<0.03	17200	44800
5	KIRBY	4	<0.1	0.04	18200	47500
6	UPPER POND	7	0.1	0.05	16600	44500
7	MID POND	9	0.2	0.06	4700	14160
8	LOWER POND	11	0.3	0.22	1100	2580
9	HUD LDG RC	3	0.1	0.07	16200	43900
10	HUD LDG LP	2	0.1	0.06	16100	43150
11	CARNEROS	6	0.6	<0.03	13600	38200
12	STRUVE RD	3	0.4	0.43	15200	38600
13	BACK BENNETT	2	0.1	0.07	18600	47500
14	EAST BENNETT	2	0.9	0.15	19400	45200
15	JETTY	1	0.1	0.04	18350	48500
16	ML RD N	11	0.2	0.14	16000	42900
17	ML RD S	2	0.1	0.09	17800	46300
18	N POTRERO	56	0.5	0.49	9400	22300
19	S POTRERO	95	0.7	0.66	3400	9900
20	MONT DUNE WY	29	0.3	0.27	6100	16900
21	SAL RVR LGN	30	0.4	0.25	4500	14530
22	SAL RVR BRG	81	0.2	0.39	3500	11000
23	MORO COJO	2	0.2	0.35	11900	33500

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MONTEREY COUNTY
WATER RESOURCES AG
P.O. BOX 930
SALINAS, CA 93902-093

WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: MARCH 7, 1994

(Units in mg/l unless otherwise noted.)

	LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
1	SKIPPERS	2	<0.05	0.03	18400	49800
2	RES BRG	2	0.07	0.06	18400	49400
3	S MARSH	3	<0.05	0.06	18000	48700
4	N MARSH	1	0.21	0.06	17400	48400
5	KIRBY	2	0.11	0.10	17100	46800
6	UPPER POND	3	0.13	0.05	18300	49000
7	MID POND	<1	<0.05	0.07	4100	12800
8	LOWER POND	2	<0.05	<0.03	5100	15600
9	HUD LDG RC	2	0.05	0.12	15900	42400
10	HUD LDG LP	3	0.06	0.14	15600	42200
11	CARNEROS	3	0.11	0.10	13900	38500
12	STRUVE RD	2	<0.05	0.22	11300	31300
13	BACK BENNETT	2	<0.05	0.10	18300	49500
14	EAST BENNETT	4	<0.05	0.17	18500	49500
15	JETTY	3	<0.05	0.07	18600	49600
16	ML RD N	6	<0.05	0.09	17800	48000
17	ML RD S	1	<0.05	0.28	9800	28400
18	N POTRERO	14	0.07	0.16	16900	44200
19	S POTRERO	75	0.42	0.59	1300	4700
20	MONT DUNE WY	11	<0.07	0.13	16100	44100
21	SAL RVR LGN	17	<0.05	0.11	14700	40500
22	SAL RVR BRG	51	<0.05	0.21	7800	23000
23	MORO COJO	3	<0.05	0.10	7400	20000

MONTEREY COUNTY
WATER RESOURCES AGENCY
P.O. BOX 930
SALINAS, CA 93902-0930

WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: 05/02/94

(Units in mg/l unless otherwise noted.)

	LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
1	SKIPPERS	2	<0.05	<0.03	19000	50300
2	RES BRG	2	<0.05	0.05	19400	51100
3	S MARSH	2	<0.05	0.05	19600	51500
4	N MARSH	4	<0.05	0.03	21200	54800
5	KIRBY	3	<0.05	0.08	20700	51600
6	UPPER POND	2	<0.05	0.05	19400	51200
7	MID POND	4	<0.05	0.34	13100	36300
8	LOWER POND	3	<0.05	0.24	13000	36400
9	HUD LDG RC	3	<0.05	0.17	19500	51800
10	HUD LDG LP	4	<0.05	0.19	24400	51700
11	CARNEROS	4	<0.05	0.05	19100	50500
12	STRUVE RD	3	<0.05	0.42	17600	46900
13	BACK BENNETT	2	<0.05	0.10	19100	50800
14	EAST BENNETT	2	<0.05	0.03	19800	52400
15	JETTY	1	<0.05	0.08	19200	51200
16	ML RD N	11	<0.05	0.08	17900	47400
17	ML RD S	4	<0.05	0.08	18600	48700
18	N POTRERO	95	0.15	0.38	6600	19600
19	S POTRERO	103	0.11	0.43	5500	17300
20	MONT DUNE WY	75	0.08	0.18	9600	27900
21	SAL RVR LGN	109	<0.05	0.08	7200	21500
22	SAL RVR BRG	137	<0.05	0.04	4700	14980
23	MORO COJO	3	<0.05	0.14	18400	48800

MONTEREY COUNTY
WATER RESOURCES AGENCY
P.O. BOX 930
SALINAS, CA 93902-0930

WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: January 29, 1993

LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
SKIPPERS	20.0	.3	.19	16700	40000
RES BRG	4.3	.3	.08	17600	38700
S MARSH	4.3	.4	.09	17900	35200
N MARSH	4.9	.6	.09	20300	35000
KIRBY	4.5	.5	.08	18500	38100
UPPER POND	38.7	.5	.07	11100	24100
MID POND	11.0	1.3	.61	2150	4280
LOWER POND	0.8	.1	.50	3100	7300
HUD LDG RC	7.8	.3	.13	15350	34500
HUD LDG LP	10.6	.4	.15	12850	27400
CARNEROS	16.6	.2	.11	252	1242
STRUVE RD	22.0	.5	.95	2300	6610
BACK BENNETT					
EAST BENNETT	7.4	.8	.41	4600	14470
JETTY	10.1	.4	.52	10100	29200
ML RD N	15.7	.3	.28	13100	36600
ML RD S	.7	.7	.80	1150	4260
N POTRERO	207	1.0	.71	950	4270
S POTRERO	219	1.1	.74	600	3180
MONT DUNE WY N	244	.8	.73	2800	8150
SAL RVR LGN	25.9	.1	.15	116	948
SAL RVR BRG	17.3	<.1	.08	38	623
MORO COJO	1.0	.6	.74	850	3150

MONTEREY COUNTY
WATER RESOURCES AGENCY
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SALINAS, CA 93902-0930

WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: FEBRUARY, 1993

LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
SKIPPERS	6.8	<.1	.06	14300	33600
RES BRG	1.7	.1	.03	14700	39600
S MARSH	1.5	.1	.04	14700	39800
N MARSH	2.5	.1	.02	12700	34900
KIRBY	5.3	.3	.06	10300	28700
UPPER POND	17.5	.2	.09	10100	28000
MID POND	3.8	1.0	.13	1400	4550
LOWER POND	<.1	.1	.24	600	1895
HUD LDG RC	18.3	.3	.12	2100	706
HUD LDG LP	12.4	.4	.20	3000	946
CARNEROS	5.5	.1	.13	75	457
STRUVE RD	12.8	.5	.33	3275	944
BACK BENNETT	7.4	.2	.17	11900	32700
EAST BENNETT	<1	.6	.04	9800	27300
JETTY	6.6	.2	.10	14600	39300
ML RD N	1.9	.4	.24	3750	11730
ML RD S	1.2	.4	.49	500	2900
N POTRERO	122	.1	.35	250	1833
S POTRERO	124	.6	.41	200	1439
MONT DUNE WY N	156	.2	.28	1150	7200
SAL RVR LGN	63	<.1	.10	58	522
SAL RVR BRG	2.6	<.1	.11	28	372
MORO COJO	<1	.3	.59	800	2390

MONTEREY COUNTY
WATER RESOURCES AGENCY
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SALINAS, CA 93902-0930

WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: MARCH 31, 1993

LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
SKIPPERS	44.0	.4	.75	5600	16140
RES BRG	3.7	.2	.17	12700	34600
S MARSH	1.3	.1	.09	12700	34600
N MARSH	6.5	3.1	.02	4500	13000
KIRBY	3.2	.4	.18	7800	21800
UPPER POND	25.7	.4	.42	3700	11100
MID POND	<1	.2	.35	825	2500
LOWER POND	<1	<.1	1.26	325	1170
HUD LDG RC	4.7	.4	.23	7925	22300
HUD LDG LP	6.0	.5	.27	4775	14100
CARNEROS	7.5	.2	.17	190	622
STRUVE RD	2.7	1.4	1.22	1900	6300
BACK BENNETT	1.6	.3	1.46	8300	23800
EAST BENNETT	3.1	.4	.35	11800	33100
JETTY	15.2	.3	.59	9900	28000
ML RD N	5.9	.3	.56	9650	27200
ML RD S	2.7	.6	1.26	975	3520
N POTRERO	90.4	.3	.67	5700	17500
S POTRERO	182	.3	.90	650	2650
MONT DUNE WY N	176	.2	.98	175	1230
SAL RVR LGN	32.5	<.1	.21	190	1220
SAL RVR BRG	15.1	<.1	.15	50	640
MORO COJO	2.8	.6	1.28	600	2320

MONTEREY COUNTY
WATER RESOURCES AGENCY
P.O. BOX 930
SALINAS, CA 93902-0930

WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: APRIL 30, 1993

LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
SKIPPERS	3.0	0.2	.05	18900	50100
RES BRG	2.0	0.5	.08	19400	50500
S MARSH	3.0	<0.1	.06	19100	50200
N MARSH	2.0	1.3	.01	9700	27600
KIRBY	3.0	0.4	.19	18100	48400
UPPER POND	2.0	0.2	.16	16000	43000
MID POND	<1.0	<0.1	.28	2850	8720
LOWER POND	2.0	<0.1	1.46	3950	22500
HUD LDG RC	2.0	<0.1	.35	8250	44200
HUD LDG LP	3.0	<0.1	.34	8300	44500
CARNEROS	5.0	0.3	.05	4750	14430
STRUVE RD	2.0	0.4	2.0	9600	27400
BACK BENNETT	1.0	0.2	.51	17900	46500
EAST BENNETT	2.0	0.2	.33	18000	47500
JETTY	6.0	0.2	.41	18400	48400
ML RD N	5.0	0.1	.10	18500	48200
ML RD S	3.0	0.2	.24	17600	45900
N POTRERO	8.0	0.2	.13	18300	47200
S POTRERO	179	0.3	.66	3850	12080
MONT DUNE WY N	76	0.8	.36	7100	20300
SAL RVR LGN	22	0.1	.01	5100	15210
SAL RVR BRG	53	0.2	<.01	2400	8030
MORO COJO	2.0	0.4	.31	17500	45700

MONTEREY COUNTY
WATER RESOURCES AGENCY
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WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: MAY 24, 1993

LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
SKIPPERS	2.0	0.2	.04	18400	48800
RES BRG	2.0	0.2	.11	24600	49100
S MARSH	2.0	0.2	.11	20300	51100
N MARSH	2.0	5.6	.03	15400	32900
KIRBY	2.0	0.3	.11	15900	49600
UPPER POND	2.0	0.2	.05	26000	50600
MID POND	2.0	0.3	.26	12400	26100
LOWER POND	12.0	0.4	4.21	24100	49700
HUD LDG RC	4.0	0.2	.38	23900	51300
HUD LDG LP	3.0	0.2	.35	26400	52100
CARNEROS	4.0	0.7	.12	23000	48000
STRUVE RD	5.0	<.1	1.03	27800	54500
BACK BENNETT	2.0	<.1	.24	18700	49100
EAST BENNETT	2.0	<.1	.25	25500	50800
JETTY	3.0	<.1	.15	23900	49600
ML RD N	19	0.3	.09	17700	38400
ML RD S	4.0	0.2	.09	41000	48600
N POTRERO	14	0.3	.15	21600	43100
S POTRERO	79	0.1	.11	9200	20500
MONT DUNE WY N	48	0.5	.04	5800	16000
SAL RVR LGN	54	0.4	.01	6800	15600
SAL RVR BRG	110	0.4	.02	2450	6610
MORO COJO	7.0	0.8	.51	24600	50100

MONTEREY COUNTY
WATER RESOURCES AGENCY
P.O. BOX 930
SALINAS, CA 93902-0930

WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: JUNE 1993

(Units in mg/L unless otherwise noted.)

	LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
1	SKIPPERS	3	.1	0.05	18,100	50400
2	RES BRG	2	.1	0.07	19,750	50900
3	S MARSH	4	.1	0.11	20,300	51200
4	N MARSH	2	1.1	0.18	21,100	55000
5	KIRBY	2	.2	0.10	20,200	51400
6	UPPER POND	3	.2	0.10	20,300	52700
7	MID POND	2	.4	0.18	24,800	65200
8	LOWER POND	7	<.1	1.83	23,400	58600
9	HUD LDG RC	3	.1	0.39	21,200	59000
10	HUD LDG LP	2	.1	0.37	21,800	56600
11	CARNEROS	3	.1	0.07	22,800	60000
12	STRUVE RD	7	<.1	1.02	21,800	59200
13	BACK BENNETT	3	.2	0.21	19,300	52400
14	EAST BENNETT	4	.2	0.37	20,800	56600
15	JETTY	3	.1	0.17	19,400	52700
16	ML RD N	3	.5	0.07	18,500	51200
17	ML RD S	8	.5	0.11	19,300	52100
18	N POTRERO	7	.2	0.10	19,200	50000
19	S POTRERO	196	.7	0.35	2,420	8670
20	MONT DUNE WY	85	.1	0.12	2,530	9140
21	SAL RVR LGN	90	<.1	0.06	2,180	7780
22	SAL RVR BRG	179	.6	0.11	1,150	4970
23	MORO COJO	5	.1	0.08	19,800	50600

MONTEREY COUNTY
WATER RESOURCES AGENCY
P.O. BOX 930
SALINAS, CA 93902-0930

WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: JULY 1993

(Units in mg/L unless otherwise noted.)

	LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
1	SKIPPERS	2	0.1	.08	19300	51200
2	RES BRG	2	0.1	.06	19000	49000
3	S MARSH	2	<0.1	.07	19800	48500
4	N MARSH	4	0.5	.10	20300	50300
5	KIRBY	2	0.1	.10	20000	48800
6	UPPER POND	2	0.2	.07	19900	49000
7	MID POND	6	0.2	1.29	25500	60200
8	LOWER POND	8	<0.1	1.15	31900	71900
9	HUD LDG RC	4	0.1	.28	21100	50900
10	HUD LDG LP	1.64	0.1	.28	21200	50200
11	CARNEROS	3	0.5	.16	22700	51100
12	STRUVE RD	5	0.4	1.10	22400	47800
13	BACK BENNETT	1	0.1	.12	20000	38800
14	EAST BENNETT	2	0.2	.16	20400	44400
15	JETTY	2	<0.1	.09	19500	42200
16	ML RD N	36	0.1	.09	14000	32400
17	ML RD S	2	0.6	.10	19400	40300
18	N POTRERO	24	0.3	.26	15600	36000
19	S POTRERO	178	0.2	.18	4700	11000
20	MONT DUNE WY	128	<0.1	.18	2900	7000
21	SAL RVR LGN	105	<0.1	.09	2400	5800
22	SAL RVR BRG	228	0.2	.00	1400	3200
23	MORO COJO	2	0.2	.10	21000	45300

MONTEREY COUNTY
WATER RESOURCES AGENCY
P.O. BOX 930
SALINAS, CA 93902-0930

WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: AUGUST 10, 1993

(Units in mg/l unless otherwise noted.)

	LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
1	SKIPPERS	5	0.1	.05	18700	48700
2	RES BRG	2	0.2	.07	18600	50500
3	S MARSH	2	<0.1	.06	20100	51800
4	N MARSH	3	0.5	.03	20300	51900
5	KIRBY	2	0.1	.08	20200	51000
6	UPPER POND	3	0.2	.08	20800	52800
7	MID POND	8	0.3	1.34	31400	75500
8	LOWER POND	8	<0.1	1.43	37000	85100
9	HUD LDG RC	4	<0.1	.29	21200	54500
10	HUD LDG LP	4	0.1	.30	21600	53000
11	CARNEROS	4	0.3	.16	23300	57700
12	STRUVE RD	5	0.1	3.23	19600	49400
13	BACK BENNETT	2	0.1	0.17	19500	49900
14	EAST BENNETT	3	0.1	0.23	21400	53400
15	JETTY	1	<0.1	.09	19500	49400
16	ML RD N	12	0.1	.06	18100	40200
17	ML RD S	3	0.2	.08	18900	49000
18	N POTRERO	6	0.2	.08	18600	48300
19	S POTRERO	98	<0.1	.01	4600	13700
20	MONT DUNE WY	81	<0.1	.05	2500	not done
21	SAL RVR LGN	89	<0.1	.08	1700	6300
22	SAL RVR BRG	144	0.2	<0.3	950	3960
23	MORO COJO	4	<0.1	.15	22300	57400

MONTEREY COUNTY
WATER RESOURCES AGENCY
P.O. BOX 930
SALINAS, CA 93902-0930

WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: September 20, 1993

(Units in mg/l unless otherwise noted.)

	LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
1	SKIPPERS	2	<0.1	0.05	18400	49100
2	RES BRG	2	<0.1	0.05	19600	49000
3	S MARSH	2	<0.1	0.05	18000	49700
4	N MARSH	3	0.4	<0.3	17600	45800
5	KIRBY	2	<0.1	0.06	19200	48900
6	UPPER POND	2	<0.1	0.06	19200	49800
7	MID POND	5	<0.1	0.27	32200	86700
8	LOWER POND	12	<0.1	0.96	74800	108300
9	HUD LDG RC	2	<0.1	0.11	19600	51400
10	HUD LDG LP	2	<0.1	0.12	19900	51100
11	CARNEROS	3	<0.1	0.24	21900	54400
12	STRUVE RD	3	<0.1	0.62	22000	53400
13	BACK BENNETT	2	<0.1	0.08	18100	48200
14	EAST BENNETT	1	<0.1	0.07	19700	49700
15	JETTY	2	<0.1	0.07	18900	48500
16	ML RD N	12	<0.1	0.07	16900	44850
17	ML RD S	2	<0.1	0.06	19600	50400
18	N POTRERO	4	0.1	0.10	18500	48400
19	S POTRERO	132	<0.1	0.08	1450	6060
20	MONT DUNE WY	111	<0.1	0.24	2300	8290
21	SAL RVR LGN	109	<0.1	0.13	1300	5590
22	SAL RVR BRG	128	<0.1	0.18	700	3840
23	MORO COJO	3	<0.1	0.13	22900	57700

MONTEREY COUN
WATER RESOURCES
P.O. BOX 930
SALINAS, CA 939

WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: October 25, 1993

(Units in mg/l unless otherwise noted.)

	LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
1	SKIPPERS	2	0.06	0.03	18500	48100
2	RES BRG	1	0.06	0.06	18800	50100
3	S MARSH	2	0.05	0.06	19200	48200
4	N MARSH	2	0.08	0.08	18800	48400
5	KIRBY	2	0.09	0.10	19400	51300
6	UPPER POND	3	0.06	0.10	20000	51900
7	MID POND	5	0.07	0.39	33400	84500
8	LOWER POND	13	0.05	0.48	55000	116300
9	HUD LDG RC	3	<0.05	0.17	20400	49200
10	HUD LDG LP	2	<0.05	0.16	20200	50700
11	CARNEROS	3	<0.05	0.09	21600	48500
12	STRUVE RD	5	<0.05	1.22	22200	54200
13	BACK BENNETT	2	0.05	0.07	19200	47200
14	EAST BENNETT	2	<0.05	0.12	19400	44200
15	JETTY	3	<0.05	0.05	18600	46500
16	ML RD N	4	0.08	0.08	17800	47200
17	ML RD S	3	0.10	0.06	18800	47700
18	N POTRERO	19	0.10	0.22	15200	39800
19	S POTRERO	89	0.16	0.46	6000	18300
20	MONT DUNE WY	114	0.15	0.38	3050	10740
21	SAL RVR LGN	128	0.05	0.30	1450	5400
22	SAL RVR BRG	140	<0.05	0.04	725	3780
23	MORO COJO	3	0.05	0.06	19000	49900

MONTEREY COUNTY
WATER RESOURCES AGENCY
P.O. BOX 930
SALINAS, CA 93902-0930

WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: November 16, 1993

(Units in mg/l unless otherwise noted.)

LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
1 SKIPPERS	2	<0.05	0.03	19400	52200
2 RES BRG	1	0.06	0.04	18600	52100
3 S MARSH	1	0.05	0.03	18600	52300
4 N MARSH	2	0.12	0.03	19000	51800
5 KIRBY	1	<0.05	0.03	18600	52000
6 UPPER POND	1	0.06	0.06	18600	51000
7 MID POND	4	1.75	0.26	17000	49000
8 LOWER POND	6	1.09	0.48	29400	76000
9 HUD LDG RC	1	0.07	0.06	18400	52000
10 HUD LDG LP	1	0.06	0.07	18600	52000
11 CARNEROS	4	0.15	<0.03	18800	51800
12 STRUVE RD	3	<0.05	0.31	19000	51900
13 BACK BENNETT	1	<0.05	0.05	18000	51100
14 EAST BENNETT	---	---	---	---	---
15 JETTY	2	<0.05	0.06	18400	50200
16 ML RD N	3	0.06	0.08	17600	49700
17 ML RD S	2	0.06	0.06	19600	53800
18 N POTRERO	34	0.42	0.42	7200	22000
19 S POTRERO	64	0.60	0.56	1350	5330
20 MONT DUNE WY	85	0.14	0.08	4000	14300
21 SAL RVR LGN	101	<0.05	<0.03	2250	8370
22 SAL RVR BRG	106	<0.05	<0.03	1200	4750
23 MORO COJO	3	<0.05	0.04	23400	59700

MONTEREY COUNTY
WATER RESOURCES AGENCY
P.O. BOX 930
SALINAS, CA 93902-0930

WATER SAMPLES FOR ELKHORN SLOUGH FOUNDATION

SAMPLE COLLECTION DATE: December 20, 1993

(Units in mg/l unless otherwise noted.)

	LOCATION	NO3	NH3-N	ORTHO PO4-P	CHLORIDE	ELECTRICAL CONDUCTIVITY umhos/cm
1	SKIPPERS	2	<0.05	<0.03	19200	48100
2	RES BRG	3	<0.05	0.04	19000	48400
3	S MARSH	2	<0.05	0.05	18600	48600
4	N MARSH	2	0.40	<0.03	18000	48200
5	KIRBY	1	0.08	0.04	18200	47400
6	UPPER POND	5	0.17	0.04	16200	44000
7	MID POND	4	0.90	0.14	12200	34900
8	LOWER POND	3	1.20	0.35	4200	14550
9	HUD LDG RC	1	<0.05	0.08	17800	46700
10	HUD LDG LP	2	<0.05	0.06	17800	46800
11	CARNEROS	2	0.15	<0.03	17200	44800
12	STRUVE RD	4	0.12	0.63	16200	42500
13	BACK BENNETT	1	0.07	0.10	18900	47900
14	EAST BENNETT	2	<0.05	0.05	17200	45500
15	JETTY	2	0.06	0.06	18600	48400
16	ML RD N	2	0.06	0.06	24600	47800
17	ML RD S	4	0.06	0.07	18000	46900
18	N POTRERO	20	0.05	0.16	11000	31700
19	S POTRERO	43	0.06	0.16	5200	16100
20	MONT DUNE WY	38	<0.05	0.04	8000	16300
21	SAL RVR LGN	42	<0.05	<0.03	4400	14900
22	SAL RVR BRG	47	<0.05	0.07	4600	16200
23	MORO COJO	1	<0.05	0.30	12700	36500

MONTEREY COUNTY
WATER RESOURCES AGENCY
P.O. BOX 930
SALINAS, CA 93902-0930

APPENDIX F
MONTGOMERY WATSON TECHNICAL MEMORANDA

MEMORANDUM

MONTGOMERY WATSON

To: Martin Feeney
Fugro West, Inc.
Date: October 12, 1995
From: Abdul Khan
Reference: 3809.0011
Subject: Response to PVWMA Comments on North County Study

RESPONSE TO COMMENTS ON INFORMATION IN APPENDIX G

Comment:

" It is not clear to me how water duty return flows were determined. Taking berries, for example, the assumed return flow is 20% for Pajaro, 23% for Springfield, 30% for Highlands South, and 19% for Highlands North. Extraction is a uniform 1.8 af/ac/yr. This means that the calculated net depletion is 1.4, 1.4, 1.3, and 1.5 af/ac/yr, respectively, for the four subareas. To me, this approach seems flawed. My sense is that extraction is even more variable among the subareas than return flow and, further, that the percentage of return flow in any subarea is largely a function of the rate in that subarea."

Response:

1. The information used in the North County Study was obtained through the integration of two models: Pajaro Valley IGSM and Salinas Valley IGSM.

2. The Pajaro Valley IGSM includes Pajaro, Springfield, and Highlands North subareas. Based on the modeling results and studies, irrigation efficiency for these subareas was estimated to be approximately 80%. As noted in the comment, for berry, the return flows for Pajaro, Springfield, and Highlands North were close to 20%. The irrigation efficiencies were assumed to vary slightly for the different subareas depending on climatic conditions, soils, and crop types.

3. Similarly, for Salinas Valley IGSM, the irrigation efficiency for the different model subregions was estimated to be approximately 70%, based on the modeling results and studies. The Salinas Valley IGSM includes Highland South, for which, the return flow was estimated to be 30%. Highlands South falls in Eastside subregion in Salinas Valley IGSM. The estimated irrigation efficiency used for Highlands South is an

average value for the Eastside subregion, a much larger area than Highlands South. It is likely that actual irrigation efficiency and therefore, return flow for Highlands South may have been overestimated because more detailed site specific information on crop types, irrigation practices, and soil conditions were not used. It is possible to model this subarea in a more detailed way to obtain more representative results. It will require a considerable amount of time and effort to convert the site specific information into model input data for Salinas Valley IGSM.

4. It is important to note, however, that the total average annual recharge in North County Study Area is about 13,600 acre-feet and higher return flow estimate in Highlands South may lead to a potential overestimation of recharge by only about 200 acre-feet per year. This represents only 1.5% of total recharge and therefore, does not significantly impact the water budget in North County Study area.

MEMORANDUM

MONTGOMERY WATSON

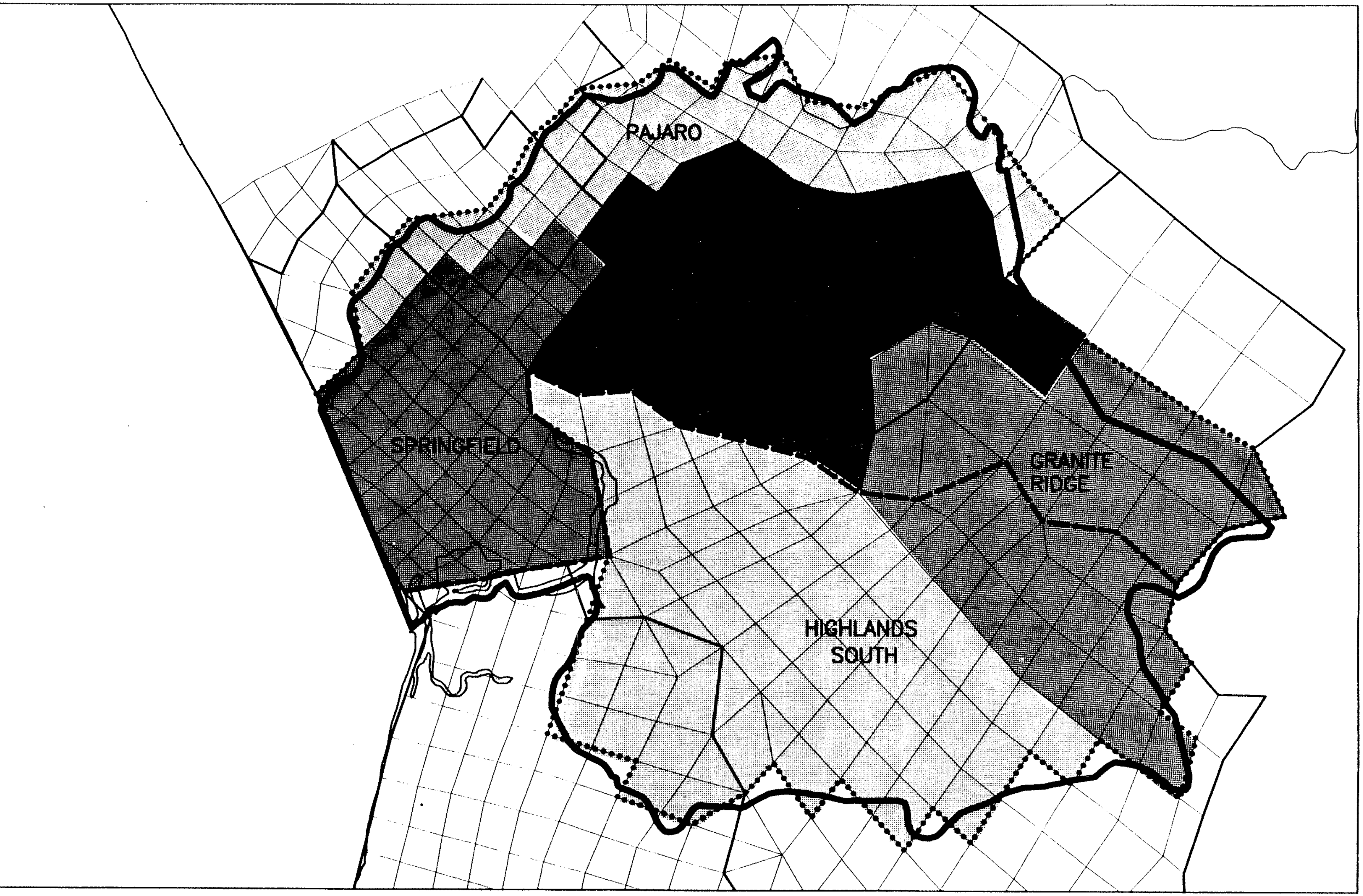
To:	Martin Feeney	**Date:**	August 1, 1995
From:	Larry Davis Young Yoon	**Client:**	Fugro
Subject:	North County Area Water Budget	**File:**	3809.0010/3.1

Technical Memorandum No. 1

Montgomery Watson's Salinas Valley IGSM (Montgomery Watson, 1994), and Pajaro Valley IGSM (JMM, 1990), together cover the North County Study Area. The Salinas Valley model covers the portion of the North County Study Area lying to the south of Elkhorn Slough and the Pajaro Valley model covers the northerly portion of the North County Study Area. In previous studies, the two models were run separately and it was assumed that there was very limited movement of groundwater at the boundaries of the two models in the North County area. Consequently, a "No Flow" boundary condition was established for the boundaries of the two models.

For this investigation, the two models have been linked in order to simulate potential groundwater movement across the boundaries of the two models. Figure 1 shows the boundary of the North County area, the model grid and the model subareas comprising the North County area. Since the model grid was not modified, the model approximation of the North County area is not precisely coincidental with the North County area boundary. The model area representing the North County area is 54,580 acres.

Based on Fugro's geologic investigation of the North County area, Montgomery Watson made refinements to the model, as necessary, to better reflect the stratigraphy of the aquifer system. Fugro provided Montgomery Watson with data indicating the depth to bedrock at each model node that lies within the North County area. Using this data, the aquifer units as represented in the model, were adjusted to provide continuity between the Pajaro and Salinas portions of the model. Land use and crop information for Salinas Valley IGSM were developed on the basis of DWR land use maps and crop surveys, and USBR GIS. Land use and crop information for the Pajaro Valley IGSM were developed on the basis of DWR land use maps and crop surveys.



Map showing No. County Study Area, Model Grid, and Subarea Boundaries
Fig. 1

The hydrologic period of October 1970 through September 1992 was used in this analysis. The model was recalibrated for this period. Model recalibration focused on the North County area and especially along the boundaries of the two linked models.

A summary of water budget information generated by the model is shown in Table 1. As can be seen by Table 1, all subareas are in an overdraft condition with a total average annual decline in storage of 5230 AF/Yr. Agricultural pumping was estimated using the DWR consumptive use method. Using that method, monthly agricultural pumping is estimated based on crop types, crop potential ET, precipitation, soil moisture requirements, and irrigation efficiency. Rural pumping was estimated based on per capita estimates (e.g. in the Pajaro model, 152 gal. per capita per day was used). Recharge to the subarea is from five sources--precipitation, agricultural return flows from applied water, return flows from indoor water use (septic tank effluent), streams and boundary inflows. In Table 1, recharge from agricultural returns flows and septic tank effluent are lumped together. While there is positive boundary recharge to the Springfield subarea, it should be recognized that two of those components are of poor quality. Seawater intrusion into the Springfield subarea and leakance from Elkhorn Slough pose quality problems. Seawater intrusion into the Springfield subarea is estimated to be about 750 AF/YR and leakance from Elkhorn Slough is estimated to be about 2570 AF/Yr. and is accounted for in the Springfield subarea boundary recharge. An additional 1090 AF/YR of Elkhorn Slough leakance is estimated to occur outside the model boundary but within the North County area boundary which follows Elkhorn Slough. As can be seen by Figure 1, the model boundary lies just to the north of Elkhorn Slough between the ocean and the junction of the Springfield and Eastside subareas.

The model was used to estimate the sustainable yield of the North County area and the results are shown in Table 2. For purposes of this report, sustainable yield is defined as the quantity of annual pumping that can occur over the period 1970 - 1992 that would result in about the same groundwater level at the beginning and end of the period of analysis. The 1992 groundwater levels were used as the beginning levels. Zero pumping is indicated for the Springfield subarea due to its proximity to the ocean. Montgomery Watson's previous studies for the Pajaro Valley Water Management Agency (Agency) also concluded that no pumping can be allowed in the Springfield subarea if the Agency is to meet its Basin Management Plan goals. Figure 2 shows the mean groundwater levels in each subarea for the period 1970 - 1992.

The quantity of water that percolates to the groundwater table is dependent on land use. In agricultural areas, rainfall and applied irrigation water available for recharge is depleted due to actual evapotranspiration caused by crop water use and soil evaporation, direct runoff of rainfall, and surface water return flow such as tailwater and field runoff. In urban areas, rainfall and applied water is depleted by actual evapotranspiration of landscape irrigation, direct runoff of rainfall which is much greater than in agricultural areas due to a higher percentage of impervious area. Deep percolation in urban areas that are sewered is further depleted if the indoor water use is

TABLE 1

ANNUAL GROUNDWATER BUDGET
(October 1970 to September 1992)

		Inflow (AF/YR)				Outflow (AF/YR)	
Model Subarea[1]	Area (Acres)	Deep Percolation	Recharge from Rain	Recharge from Streams	Recharge from Boundary[2]	Pumping	Change in Storage (AF/YR)
Highlands South	16,270	4,260	2,034	0	-110	5,020	-870
Granite Ridge	11,820	1,720	1,371	-230	-2,230	610	-1,350
Highlands North	11,480	2,670	1,722	+210	-320	4,780	-2,220
Pajaro	7,020	2,260	541	-	+6,070[3]	9,030	-700
Springfield	7,990	2,670	1,132	-160	+4,070[4]	6,670	-90
Totals	**54,580**	**13,580**	**6,800**	**-180**	**+7,480**	**26,110**	**-5,230**

[1] See Figure 1 for location.
[2] Positive number indicates groundwater flow into the subarea.
[3] Includes Pajaro RIver recharge of 4,254 AF/YR.
[4] Includes seawater intruison of 750 AF/YR and Elkhorn SLough leakance of 2,570 AF/YR.

TABLE 2

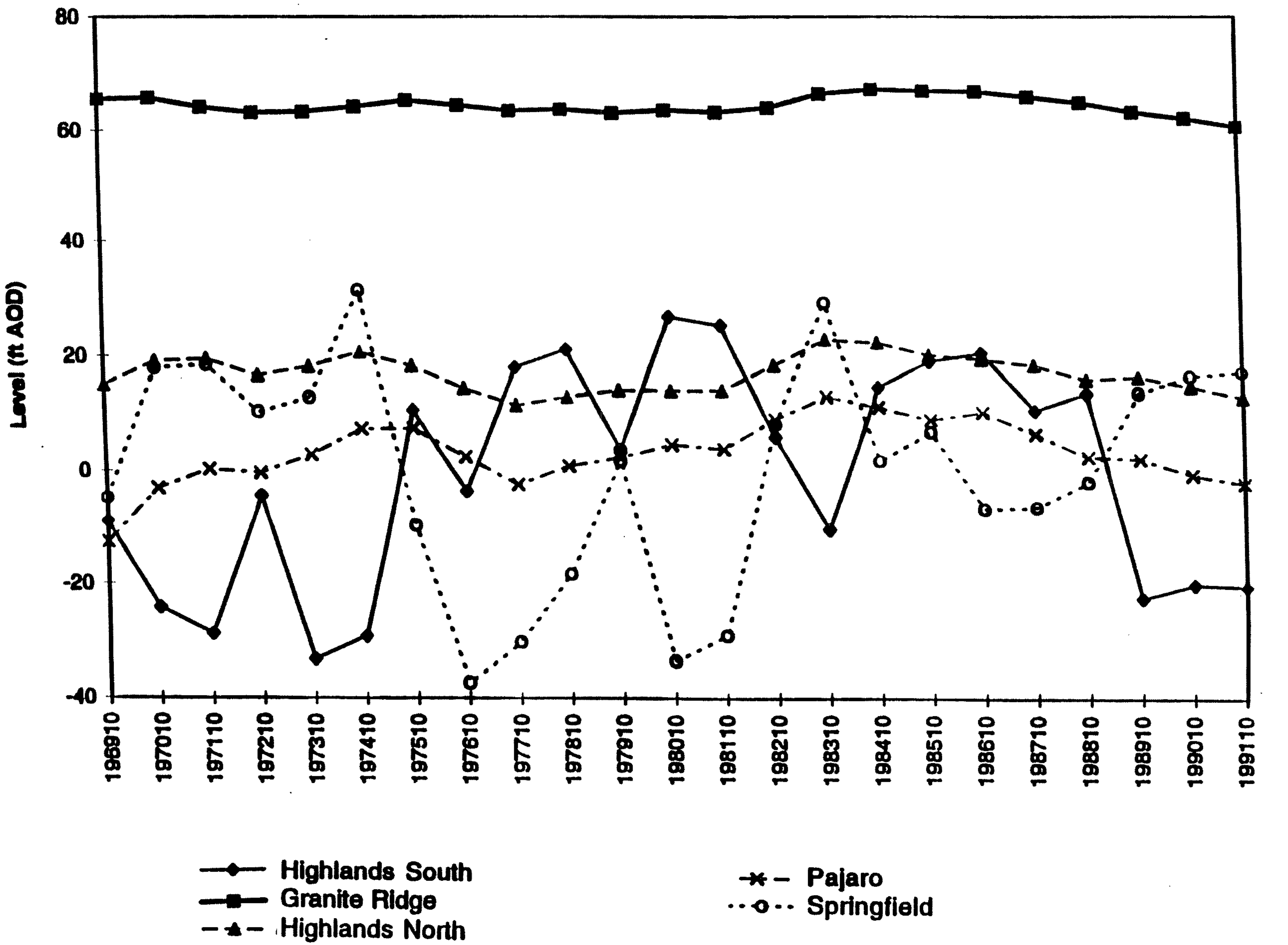
SUSTAINABLE YIELD[1]
(AF/YR)

Subarea	Historic Pumping (AF/YR)	Sustainable Yield (AF/YR)
Highlands South	5,020	4,390
Grainte Ridge	610	610
Highlands North	4,780	2,920
Pajaro	9,030	6,490
Springfield	6,670	0
Total	**26,110**	**14,410**

[1] Sustainable yield is defined as the quantity of annual pumping that can occur over the period 1970-1992 that would result in approximately the same groundwater level at the beginning and end of the period of analysis. Seawater intrusion is not allowed which reduces pumping in the Springfield subarea to zero.

Figure 2

Mean Groundwater Levels by Subarea



not returned to groundwater. In undeveloped areas, water available for recharge from rainfall is depleted by actual evapotranspiration of native vegetation and direct runoff of rainfall. The recharge rates for different land use categories for the subareas in the North County are furnished in Table 3.

TABLE 3

DEEP PERCOLATION FOR DIFFERENT LAND USE CATEGORIES (Inches/YR)

Model Subarea[1]	Land Use Category		
	Agricultural	**Urban**	**Undeveloped**
Highlands South	9.9	12.7	1.5
Granite Ridge	9.6	14.1	1.4
Highlands North	5.5	15.2	1.8
Pajaro	4.3	12.6	0.9
Springfield	4.0	17.3	1.7

[1] See Figure 1 for location.

REFERENCES

James M. Montgomery Engineers, 1990. Pajaro Valley Water Management and Augmentation Study: Pajaro Valley Hydrologic and Water Quality Model. Prepared for the U.S. Bureau of Reclamation.

Montgomery Watson, 1994. Salinas River Basin Water Resources Management Plan, Task 1.09: Salinas Valley Groundwater Flow and Quality Model Report. Prepared for Monterey County Water Resources Agency.

MEMORANDUM

MONTGOMERY WATSON

To:	Martin Feeney	Date:	August 1, 1995
From:	Larry Davis Young Yoon	Client:	Fugro
		File No.:	3809.0010/3.1

Subject: North County Area Nitrogen Loading Factors

Technical Memorandum No. 2

The purpose of this Technical Memorandum is to provide nitrogen loading factors for various land use categories. These factors can be used to assess the water quality impacts of water percolating down to the saturated zone underlying various types of land use.

The Pajaro Valley IGSM has a water quality component and that component was used in a previous study to simulate nitrogen as nitrate (NO_3), concentrations in Pajaro Valley groundwater. The model simulates the occurrence of nitrogen in the soil zone, unsaturated zone, and the groundwater system. Nitrogen loading factors for the North County Study Area are based in that work.

Two major sources of nitrogen loading in the North County area are from septic tank operations and agricultural activities. Nitrogen loading from septic tank operations can be estimated by using 10 lbs./per capita per year. This is the amount of NO_3 that would be added to groundwater from septic tank leachate. This loading rate is based on a per capita use of 152 gal/capita/day with 55% of the total use being indoor use. The septic tank effluent concentration is assumed to be 40 mg/l as NO_3. For purposes of the GIS, the urban or rural land use designation with the associated density of development can be used with the above loading factor. If landscape fertilization is to be considered for urban or rural land uses, an additional 17 lbs./acre should be allowed. This value is associated with lawn fertilization.

Fertilization application varies substantially by crop type. The nitrogen loading factors by major crop type are shown in Table 1.

TABLE 1
Nitrogen Loading by Crop Type

Crop	Loading Rate Lbs./Acre/Year
Truck Crops	69
Berries	67
Field Crops	38
Flowers/Nursery	83
Fruits/Nuts	22
Pasture	15
Vineyard	21

The loading rates shown in Table 1 are the amounts of NO_3 added to groundwater after applied water percolates to the saturated zone. The quantities of fertilizer applied to crops can be as high as 500 lbs./acre/year as is the case of celery. Truck and berry crops average about 180 lbs./acre/year.

Other sources of nitrogen loading include recharge from streams and Elkhorn Slough. In the Pajaro Study, a value of 10 lbs./AF was estimated for stream recharge. It is recommended this value be used to account for nitrogen loading resulting from stream recharge.

APPENDIX G
WATER DEMAND SUPPORTING DOCUMENTS

Build-out Analysis

Approach. This appendix contains spreadsheets detailing the build-out analysis described in the report. The County Planning and Building Inspection Department (Planning) conducted a build-out analysis of the area. These two studies used different databases to conduct their respective analyses. Fugro's analysis is based upon a parcel-by-parcel determination of potential development. Planning's approach divided gross acreage by density. The latter is less precise.

Existing Units. A serious issue arose when the two studies had a wide variance in the number of *existing* dwelling units. A small variance would be allowable given the different approaches taken to ascertaining the number of units. This would come from varying geographies, data-entry errors, or improper counts in the field. However, the number varied by over 1,500 dwelling units between the two studies. Fugro's numbers were based upon assessor's computer data. Planning used an updated 1981 tabular study. Planning also had dot maps representing finaled building permits issued by parcel. Since the basis for the Planning 1981 tabular study was unclear, it was decided to create a union of hard data using the dot maps and the assessor files. Comparing the union of this hard data and Planning's 1981 study, Fugro found that there was only a 117 unit difference. Fugro and Planning agreed that this was an acceptable difference given the long span of time over which data was collected and the inherent inaccuracies of analyzing uses on a large number of parcels. The two parties ultimately agreed that the union of hard data was a reasonable representation of existing units in the study area.

Fugro created a set of maps (not included in this report) that analyzed the differences in the two sets of existing dwelling units. The following describes the maps, and the adjustments made to normalize the existing unit count.

Map 1: Dwelling Units by Parcel. This map is the result of digitizing the County's "DOT" map. The map shows dwelling units by color-code (colors = # of DU per parcel).

Map 2: Difference in Observed and Calculated

Map 3: Adjusted Union. This map is a compilation of the Assessor's data digitized originally and the DOT data supplied by Planning. This map shows 9,318 dwelling units, which is 117 units less than Planning's figures. Errors in tabulation, entry, or actual units not in one of the databases would account for this small difference (1%). The modifications to the data are described below:

DOT	8,024:	County dot map plus list of finaled permits (10/92 through 11/94) entered by Fugro into GIS. Likelihood of very few errors in entry.
Assessors	7,540	Assessor's land use code in GIS data. Fugro made several assumptions about multi-family and mobile home parks.

		(Assessor's list these in ranges, e.g. 16 - 30 unit apartments).
Union	9,531	Union of the DOT and Assessor's data. Equals the highest number when parcels show different numbers.
Adjusted Union	**9,318**	Corrects the Union. DOT data is superior for multi-family and mobile home. Assessor's data appears superior for single family dwellings. Coastal = 4,218; Non-Coastal = 5,100.
Planning's estimate	9,686	From Planning's build-out spreadsheets. Originally assumed to come from DOT map, but variance from Planning's spreadsheets (1,662) is far greater than can be accounted for by entry errors.
Adjusted Planning	**9,435**	Removes 251 unit mobile home park located west of Oak Hills off Highway 156 (outside of study area). Coastal = 4,359; Non-Coastal = 5,073.
Difference:	117	County number is higher. Fugro used the Adjusted Union for it's build-out analysis.

Build-out

1. **Existing Dwelling Units**. As described above, the Fugro build-out used 9,318 existing dwelling units.

2. **Potential Dwelling Units**. Fugro's approach to determining how many more units could be developed in the North County planning area involved a number of steps.[1] The analysis was done on a computer-based Geographic Information System (GIS).

   - All parcels in the area were digitized onto the GIS. Information added to the GIS database included parcel size, zoning, and land use information.

   - Existing dwelling units were digitized as described above.

[1] County build-out was created by dividing total acreage in a land use category (within a USGS subwatershed) by the allowable density. This does not account for parcels developed that are smaller than allowable density, i.e., undersize lots. It also over-counts parcels that exceed minimum lot size, but are too small for resubdivision. Furthermore, if the number of existing units exceed the number that would be allowed by dividing the area by density, the number of units over the allowable amount are shown as a negative number. This number reduces the total build-out. This is an inability to account for sub-standard lots. These negative numbers should at least be converted to zero.

- A model was developed for the GIS that would compute the allowable number of future dwelling units that could be built in the planning area. The process for the model was as follows. Each parcel was individually analyzed by the computer.

    * Undeveloped parcels. If the parcel was zoned residential (or was allowed dwellings), the model determined the allowable density of units based upon the parcel's zoning. The allowable density was recomputed as a minimum lot size (2 units/acre = 1 acre minimum lot size). The parcel's total acreage was divided by the minimum lot size. The resulting number was converted to an integer (the remainder acreage--not enough for another lot--was discarded so it would not accumulate, and thus give a false high for allowable units).

    * Developed or partially developed parcels. If a parcel had a dwelling unit (or units), the model subtracted the minimum lot size from the parcel's acreage for each unit. Any land remaining was then analyzed as an undeveloped parcel (as described above). If the remainder acreage was not enough for another unit, it was discarded. If additional units could be constructed, they were added to the future dwelling units count.

- This data was kept discrete by zoning type and by coastal/non-coastal distinction.

- The coastal parcels (those within the LCP boundary) were re-analyzed in accordance with current zoning densities. There is a county requirement that determined a specific number of units that could be built. The number of units, according to County Planning, is as follows: "unit numbers are based on 1994 levels plus vacant lots (assuming one unit could be developed on the vacant lot). The 667 units were remaining to be allocated for development. Since these unit levels were based on 50% of plan densities, unlike the non-coastal area, [County Planning] Staff assumes no further reduction is necessary to arrive at the most probable build-out level."

Issues. Several assumptions made in the build-out should be discussed in order to understand potential weaknesses.

- **Future Subdivisions**. The model accounts for parcels that can be subdivided. However, it does not account for the possibility of lot line adjustments. These can occur if numerous owners agree to reform their properties to maximize the development potential. The implicit assumption in the model is that this will not occur. The argument in support of this assumption is that in reality this will only occur on occasion, given the considerable transaction costs involved. A modification can be made to the model to allow for some amount of lot line adjustments. Remainder portions of parcels (too small for an extra lot) can be added back into the overall acreage. This would be most effective if the remainder acreage had to be fairly close to the size of a legal lot to qualify for adding back in (example: a 1.8 acre remainder would be added back in a two acre minimum lot size area, but not something so small as .5 acres). The cutoff could be calibrated based upon the Planning Department's experience.

Development Constraints. Many areas in the planning area have physical constraints to development. These include the presence of wetlands, endangered species, steep slopes or pre-existing non-conforming land uses. The assumption implicit in the model is that all parcels can be developed. The argument for this is that, in spite of natural constraints in the North County, most parcels have an area free of constraints that is at least large enough to support a dwelling. There are likely a few parcels that are completely "unbuildable".

North Monterey County
Buildout Potential, by post-subdivided acreage
October 15, 1995

Scenario 1: Normal Buildout, based on zoning, with coastal restriction
Corrected Version

A. COASTAL

Coastal Development Potential (DU): 667

	Existing			Potential			Buildout		
Subarea	*< 1 ac*	*1-10 ac*	*> 10 ac*	*< 1 ac*	*1-10 ac*	*>10 ac*	*<1 ac*	*1-10 ac*	*>10 ac*
Pajaro	0	2	0	0	1	0	0	2	0
Highlands North	644	512	59	129	24	20	773	536	80
Highlands South	1,138	1,041	110	301	48	21	1,438	1,089	131
Springfield Terrace	332	179	30	88	8	6	420	187	35
Granite Ridge	37	116	20	1	17	5	38	133	25
TOTAL	2,150	1,850	218	519	96	52	2,669	1,946	271
Actual Totals	2,150	1,850	218	2,758	513	276	4,908	2,363	494

B. NON-COASTAL

	Existing			Potential			Buildout		
Subarea	*< 1 ac*	*1-10 ac*	*> 10 ac*	*< 1 ac*	*1-10 ac*	*>10 ac*	*<1 ac*	*1-10 ac*	*>10 ac*
Pajaro	675	165	40	7	39	64	682	204	105
Highlands North	260	601	50	30	436	20	290	1,037	69
Highlands South	1,027	897	30	45	513	-15	1,072	1,410	15
Springfield Terrace	59	18	4	2	1	7	60	19	11
Granite Ridge	460	765	50	21	285	48	481	1,050	98
TOTAL	2,481	2,445	174	104	1,274	124	2,585	3,719	298
Actual Totals	2,481	2,445	174	104	1,274	124	2,585	3,719	298

C. TOTAL

	Existing			Potential			Buildout		
Subarea	*< 1 ac*	*1-10 ac*	*> 10 ac*	*< 1 ac*	*1-10 ac*	*>10 ac*	*<1 ac*	*1-10 ac*	*>10 ac*
Pajaro	675	166	40	7	40	65	682	206	105
Highlands North	904	1,113	109	159	460	40	1,062	1,573	149
Highlands South	2,165	1,938	140	346	561	6	2,510	2,499	145
Springfield Terrace	391	197	33	90	9	13	481	206	46
Granite Ridge	497	881	70	22	302	53	519	1,182	123
TOTAL	4,631	4,295	392	623	1,370	176	5,254	5,665	569
Actual Totals	4,631	4,295	392	2,862	1,787	400	7,493	6,082	792

Ground Water Demand
Summary of Total

Comparison -- Current and Buildout Demand							
Summary -- Current Demand						**FUGRO**	**M-W**
Subarea	Agriculture	Residential	Other	**Total**	**Supply**	**Result**	
Pajaro	7,979	303	32	**8,315**	4,860	-3,455	-2,451
Highlands North	3,190	818	9	**4,016**	1,932	-2,084	-1,900
Highlands South	2,700	1,547	36	**4,283**	2,034	-2,249	-760
Springfield Terrace	5,370	226	111	**5,707**	972	-4,735	-4,160
Granite Ridge	456	567	21	**1,044**	1,141	97	880
	19,695	3,461	209	**23,365**	**10,939**	**-12,426**	**-8,391**
Summary -- Buildout Demand						**FUGRO**	
Subarea	Agriculture	Residential	Other	**Total**	**Supply**	**Result**	
Pajaro	7,979	415	32	**8,427**	4,860	-3,567	
Highlands North	5,756	1,479	9	**7,243**	1,932	-5,311	
Highlands South	7,917	2,484	36	**10,437**	2,034	-8,403	
Springfield Terrace	5,370	340	111	**5,821**	972	-4,849	
Granite Ridge	456	943	21	**1,420**	1,141	-279	
	27,478	5,661	209	**33,348**	**10,939**	**-22,409**	

Ground Water Demand (NET)
North County Monterey

Ground Water Demand (NET)								
	Current	Water Duty			Current	Potential		Build-out
Pajaro	DU/Acres	Extraction	Return Flow	Depletion	Demand AFY	DU/Acres	Demand AFY	Demand AFY
Uncoded		0.8	50%	0.4	0		0	0
Urban Residential (<1 ac/du)	675 du	0.7	55%	0.3	197	7 du	2	204
Suburban Residential (1-10 ac/du)	166 du	0.8	50%	0.4	66	40 du	16	106
Rural Residential (>10 ac/du)	40 du	1.7	40%	1.0	40	65 du	64	105
Commercial/Office	28	1.0	60%	0.4	11		0	11
Industrial	52	1.0	60%	0.4	21		0	21
Truck Crops	3,702	1.8	20%	1.4	5,331		0	5,331
Berries	1,316	1.8	20%	1.4	1,895		0	1,895
Field Crops	114	1.2	20%	1.0	110		0	110
Flowers/Nursery/mushrooms	101	2.0	20%	1.6	161		0	161
Fruits/Nuts	297	1.2	20%	1.0	285		0	285
Pasture	0	2.0	20%	1.6	0		0	0
Vineyard	0	1.2	20%	1.0	0		0	0
Grazing/Open	729	0.0	0%	0.0	0		0	0
Other Agriculture	206	1.2	20%	1.0	198		0	198
Recreation Open Space	0	1.2	20%	1.0	0		0	0
Conservation Open Space	0	0.0	0	0.0	0		0	0
Public Facilities	26	0.0	0	0.0	0		0	0
Utilities/Common	3	0.0	0	0.0	0		0	0
	7,455				**8,315**			**8,427**

Ground Water Demand (NET)
North County Monterey

Ground Water Demand (NET)								
	Current	Water Duty			Current	Potential		Build-out
Highlands North	DU/Acres	Extraction	Return Flow	Depletion	Demand AFY	DU/Acres	Demand AFY	Demand AFY
Uncoded		0.0	0%	0	0		0	0
Urban Residential (<1 ac/du)	904 du	0.7	55%	0.3	264	162 du	47	426
Suburban Residential (1-10 ac/du)	1,113 du	0.8	50%	0.4	445	459 du	184	904
Rural Residential (>10 ac/du)	109 du	1.7	40%	1.0	108	40 du	40	148
Commercial/Office	21	1.0	60%	0.4	9		0	9
Industrial	0	1.0	60%	0.4	0		0	0
Truck Crops	523	1.8	19%	1.5	763		0	763
Berries	761	1.8	19%	1.5	1,109	2,566	3741	3,675
Field Crops	58	1.2	19%	1.0	56		0	56
Flowers/Nursery/mushrooms	527	2.0	19%	1.6	854		0	854
Fruits/Nuts	138	1.2	19%	1.0	135		0	135
Pasture	127	2.0	19%	1.6	206		0	206
Vineyard	0	1.2	19%	1.0	0		0	0
Grazing/Open	6,766	0.0	0%	0.0	0		0	0
Other Agriculture	69	1.2	19%	1.0	67		0	67
Recreation Open Space	0	1.2	19%	1.0	0		0	0
Conservation Open Space	2	0.0	0	0.0	0		0	0
Public Facilities	18	0.0	0	0.0	0		0	0
Utilities/Common	12	0.0	0	0.0	0		0	0
	11,149				**4,016**			**7,243**

Ground Water Demand (NET)
North County Monterey

Ground Water Demand (NET)								
	Current	Water Duty			Current	Potential		Build-out
Highlands South	DU/Acres	Extraction	Return Flow	Depletion	Demand AFY	DU/Acres	Demand AFY	Demand AFY
Uncoded		0.0	0%	0	0		0	0
Urban Residential (<1 ac/du)	2,165 du	0.7	55%	0.3	633	340 du	99	973
Suburban Residential (1-10 ac/du)	1,938 du	0.8	50%	0.4	775	561 du	224	1,336
Rural Residential (>10 ac/du)	140 du	1.7	40%	1.0	139	36 du	36	175
Commercial/Office	85	1.0	60%	0.4	34		0	34
Industrial	5	1.0	60%	0.4	2		0	2
Truck Crops	241	1.8	30%	1.3	303		0	303
Berries	1,516	1.8	30%	1.3	1,910	5,217	6573	7,127
Field Crops	224	1.2	30%	0.8	189		0	189
Flowers/Nursery/mushrooms	106	2.0	30%	1.4	148		0	148
Fruits/Nuts	6	1.2	30%	0.8	5		0	5
Pasture	41	2.0	30%	1.4	58		0	58
Vineyard	1	1.2	30%	0.8	1		0	1
Grazing/Open	9,602	0.0	0%	0.0	0		0	0
Other Agriculture	102	1.2	30%	0.8	86		0	86
Recreation Open Space	0	1.2	30%	0.8	0		0	0
Conservation Open Space	58	0.0	0	0.0	0		0	0
Public Facilities	125	0.0	0	0.0	0		0	0
Utilities/Common	37	0.0	0	0.0	0		0	0
	16,393				**4,283**			**10,437**

Ground Water Demand (NET)
North County Monterey

Ground Water Demand (NET)								
	Current	Water Duty			Current	Potential		Build-out
Springfield Terrace	DU/Acres	Extraction	Return Flow	Depletion	Demand AFY	DU/Acres	Demand AFY	Demand AFY
Uncoded		0.0	0%	0	0		0	0
Urban Residential (<1 ac/du)	391 du	0.7	55%	0.3	114	93 du	27	207
Suburban Residential (1-10 ac/du)	197 du	0.8	50%	0.4	79	8 du	3	87
Rural Residential (>10 ac/du)	33 du	1.7	40%	1.0	33	13 du	13	46
Commercial/Office	12	1.0	60%	0.4	5		0	5
Industrial	0	1.0	60%	0.4	0		0	0
Truck Crops	2,810	1.8	23%	1.4	3,894		0	3,894
Berries	543	1.8	23%	1.4	752		0	752
Field Crops	77	1.2	23%	0.9	71		0	71
Flowers/Nursery/mushrooms	187	2.0	23%	1.5	288		0	288
Fruits/Nuts	7	1.2	23%	0.9	7		0	7
Pasture	155	2.0	23%	1.5	239		0	239
Vineyard	13	1.2	23%	0.9	12		0	12
Grazing/Open	3,204	0.0	0%	0.0	0		0	0
Other Agriculture	114	1.2	23%	0.9	106		0	106
Recreation Open Space	115	1.2	23%	0.9	106		0	106
Conservation Open Space	457	0.0	0	0.0	0		0	0
Public Facilities	49	0.0	0	0.0	0		0	0
Utilities/Common	0	0.0	0	0.0	0		0	0
	8,366				**5,707**			**5,821**

Ground Water Demand (NET)
North County Monterey

Ground Water Demand (NET)								
	Current	Water Duty			Current	Potential		Build-out
Granite Ridge	DU/Acres	Extraction	Return Flow	Depletion	Demand AFY	DU/Acres	Demand AFY	Demand AFY
Uncoded		0.0	0%	0	0		0	0
Urban Residential (<1 ac/du)	497 du	0.7	55%	0.3	145	22 du	6	167
Suburban Residential (1-10 ac/du)	881 du	0.8	50%	0.4	352	302 du	121	654
Rural Residential (>10 ac/du)	70 du	1.7	40%	1.0	69	52 du	51	121
Commercial/Office	44	1.0	60%	0.4	18		0	18
Industrial	8	1.0	60%	0.4	3		0	3
Truck Crops	51	1.8	20%	1.4	73		0	73
Berries	71	1.8	20%	1.4	102		0	102
Field Crops	13	1.2	20%	1.0	13		0	13
Flowers/Nursery/mushrooms	124	2.0	20%	1.6	198		0	198
Fruits/Nuts	20	1.2	20%	1.0	19		0	19
Pasture	9	2.0	20%	1.6	14		0	14
Vineyard	0	1.2	20%	1.0	0		0	0
Grazing/Open	7,046	0.0	0%	0.0	0		0	0
Other Agriculture	40	1.2	20%	1.0	38		0	38
Recreation Open Space	0	1.2	20%	1.0	0		0	0
Conservation Open Space	2	0.0	0	0.0	0		0	0
Public Facilities	66	0.0	0	0.0	0		0	0
Utilities/Common	6	0.0	0	0.0	0		0	0
	8,947				**1,044**			**1,420**

Nitrate Loading						
	Current	Loading Rates	Current	Potential		Build-out
Pajaro	DU/Acres	Pounds	Nitrate Load	DU/Acres	Nitrate Load	Nitrate Load
Uncoded		0.0	0			0
Urban Residential (<1 ac/du)	675 du	31.0	20,925	7 du	217	21,142
Suburban Residential (1-10 ac/du)	166 du	31.0	5,146	40 du	1,240	6,386
Rural Residential (>10 ac/du)	40 du	41.0	1,640	65 du	2,665	4,305
Commercial/Office	28	0.0	0			0
Industrial	52	0.0	0			0
Truck Crops	3,702	69.0	255,434			255,434
Berries	1,316	67.0	88,164			88,164
Field Crops	114	38.0	4,338			4,338
Flowers/Nursery/Mushrooms	101	83.0	8,356			8,356
Fruits/Nuts	297	21.0	6,235			6,235
Pasture	0	0.0	0			0
Vineyard	0	21.0	0			0
Grazing/Open	729	0.0	0			0
Other Agriculture	206	0.0	0			0
Recreation Open Space	0	0.0	0			0
Conservation Open Space	0	0.0	0			0
Public Facilities	26	0.0	0			0
Utilities/Common	3	0.0	0			0
			390,238		4,122	394,360

Nitrate Loading						
	Current	Loading Rates	Current	Potential		Build-out
Highlands North	DU/Acres	Pounds	Nitrate Load	DU/Acres	Nitrate Load	Nitrate Load
Uncoded		0.0	0			0
Urban Residential (<1 ac/du)	904 du	31.0	28,024	162 du	5,022	33,046
Suburban Residential (1-10 ac/du)	1,113 du	31.0	34,503	459 du	14,229	48,732
Rural Residential (>10 ac/du)	109 du	41.0	4,469	40 du	1,640	6,109
Commercial/Office	21	0.0	0			0
Industrial	0	0.0	0			0
Truck Crops	523	69.0	36,115			36,115
Berries	761	67.0	50,970	2,566	171,922	222,892
Field Crops	58	38.0	2,196			2,196
Flowers/Nursery/mushrooms	527	83.0	43,733			43,733
Fruits/Nuts	138	21.0	2,906			2,906
Pasture	127	0.0	0			0
Vineyard	0	21.0	0			0
Grazing/Open	6,766	0.0	0			0
Other Agriculture	69	0.0	0			0
Recreation Open Space	0	0.0	0			0
Conservation Open Space	2	0.0	0			0
Public Facilities	18	0.0	0			0
Utilities/Common	12	0.0	0			0
			202,916		192,813	395,729

Nitrate Loading						
	Current	Loading Rates	Current	Potential		Build-out
Highlands South	DU/Acres	Pounds	Nitrate Load	DU/Acres	Nitrate Load	Nitrate Load
Uncoded		0.0	0			0
Urban Residential (<1 ac/du)	2,165 du	31.0	67,115	340 du	10,540	77,655
Suburban Residential (1-10 ac/du)	1,938 du	31.0	60,078	561 du	17,391	77,469
Rural Residential (>10 ac/du)	140 du	41.0	5,740	36 du	1,476	7,216
Commercial/Office	85	0.0	0			0
Industrial	5	0.0	0			0
Truck Crops	241	69.0	16,605			16,605
Berries	1,516	67.0	101,579	5,217	349,539	451,118
Field Crops	224	38.0	8,528			8,528
Flowers/Nursery/mushrooms	106	83.0	8,783			8,783
Fruits/Nuts	6	21.0	122			122
Pasture	41	0.0	0			0
Vineyard	1	21.0	29			29
Grazing/Open	9,602	0.0	0			0
Other Agriculture	102	0.0	0			0
Recreation Open Space	0	0.0	0			0
Conservation Open Space	58	0.0	0			0
Public Facilities	125	0.0	0			0
Utilities/Common	37	0.0	0			0
			268,578		378,946	647,524

Nitrate Loading						
	Current	Water Duty	Current	Potential		Build-out
Springfield Terrace	DU/Acres	Extraction	Demand AFY	DU/Acres	Demand AFY	Demand AFY
Uncoded		0.0	0			0
Urban Residential (<1 ac/du)	391 du	31.0	12,121	93 du	2,883	15,004
Suburban Residential (1-10 ac/du)	197 du	31.0	6,107	8 du	248	6,355
Rural Residential (>10 ac/du)	33 du	41.0	1,353	13 du	533	1,886
Commercial/Office	12	0.0	0			0
Industrial	0	0.0	0			0
Truck Crops	2,810	69.0	193,881			193,881
Berries	543	67.0	36,354			36,354
Field Crops	77	38.0	2,922			2,922
Flowers/Nursery/mushrooms	187	83.0	15,520			15,520
Fruits/Nuts	7	21.0	151			151
Pasture	155	0.0	0			0
Vineyard	13	21.0	281			281
Grazing/Open	3,204	0.0	0			0
Other Agriculture	114	0.0	0			0
Recreation Open Space	115	0.0	0			0
Conservation Open Space	457	0.0	0			0
Public Facilities	49	0.0	0			0
Utilities/Common	0	0.0	0			0
			268,691		3,664	272,355

Nitrate Loading						
	Current	Loading Rates	Current	Potential		Build-out
Granite Ridge	DU/Acres	Pounds	Nitrate Load	DU/Acres	Nitrate Load	Nitrate Load
Uncoded		0.0	0			0
Urban Residential (<1 ac/du)	497 du	31.0	15,407	22 du	682	16,089
Suburban Residential (1-10 ac/du)	881 du	31.0	27,311	302 du	9,362	36,673
Rural Residential (>10 ac/du)	70 du	41.0	2,870	52 du	2,132	5,002
Commercial/Office	44	0.0	0			0
Industrial	8	0.0	0			0
Truck Crops	51	69.0	3,489			3,489
Berries	71	67.0	4,733			4,733
Field Crops	13	38.0	503			503
Flowers/Nursery/mushrooms	124	83.0	10,251			10,251
Fruits/Nuts	20	21.0	414			414
Pasture	9	0.0	0			0
Vineyard	0	21.0	0			0
Grazing/Open	7,046	0.0	0			0
Other Agriculture	40	0.0	0			0
Recreation Open Space	0	0.0	0			0
Conservation Open Space	2	0.0	0			0
Public Facilities	66	0.0	0			0
Utilities/Common	6	0.0	0			0
			64,977		12,176	77,153
					Total	1,787,121

Nitrate Loading				
Nitrate Loading	Existing (pounds)		Build-out (pounds)	
North County Totals	Ag	Residential	Ag	Residential
Pajaro	362,527	27,711	362,527	31,833
Highlands North	135,920	66,996	307,842	87,887
Highlands South	135,645	132,933	485,184	162,340
Springfield Terrace	249,110	19,581	249,110	23,245
Granite Ridge	19,389	45,588	19,389	57,764
Totals	902,591	292,809	1,424,052	363,069
	Existing Total	1,195,400	Build-out Total	1,787,121

APPENDIX H
MISCELLANEOUS SUPPORTING DATA

NC-04 DWR (19

STATE OF CALIFORNIA—RESOURCES AGENCY

DEPARTMENT OF WATER RESOURCES
3374 E. SHIELDS AVE.
FRESNO 93726
(209) 488-5443

EDMUND G. BROWN JR., Governor

MCFC&WCD				
INT.	NAME	[illegible]	FOR ACT	SEE ME
	BUNTE			
	BINDER			
	MADRUGA			
	BARENO			
	STEWART			
	TAYLOR			
	GLAZNER			
	PARKS DPT.			
FILE				

March 23, 1977

Monterey County FC & WCD

Mr. Loran S. Bunte, Jr.
District Engineer
Monterey County Flood Control and
Water Conservation District
P. O. Box 930
Salinas, CA 93901

Dear Mr. Bunte:

The attached report on the water resources and water requirements of the North Monterey area, in the northern part of Monterey County, is the result of the cooperative agreement between the Department of Water Resources and the Monterey County Flood Control and Water Conservation District.

The study was initiated after residents in the study area expressed concern over the adequacy of present ground water supplies to meet the water demands of current and future levels of development. Present water supplies are met almost exclusively by pumping from the underlying ground water basin.

The Department concludes that the 21 700-hectare (53,700-acre) study area is experiencing an overdraft of its ground water supplies that is causing sea water intrusion into aquifers along the coast and lowering ground water tables elsewhere.

A review of proposed projects to import water into the study area revealed that no single proposal is comprehensive enough to correct all the deficiencies that now exist and that no comprehensive solution conceived during the course of the study showed sufficient promise to warrant more than cursory evaluation.

Sincerely,

Carl L. Stetson

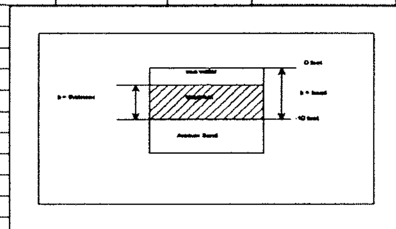
Carl L. Stetson, Chief
San Joaquin District

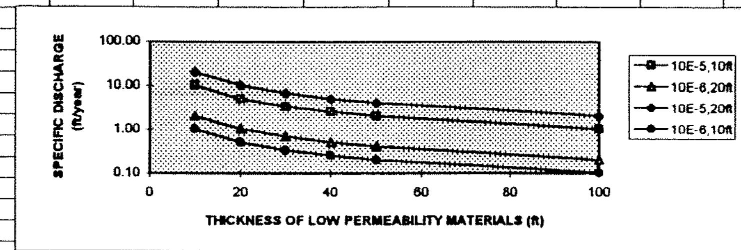
Attachment

LEAKAGE THROUGH SLOUGH

q = kh/b

where = q, flow through unit area
k, hydraulic conductivity
h, delta head
b, thickness of flow path





Head (feet)	Thickness (feet)	Hydraulic onductivit (cm/sec)	Hydraulic Conductivity (ft/year)	q (feet/year)	Head (feet)	Thickness (feet)	Hydraulic onductivit (cm/sec)	Hydraulic Conductivity (ft/year)	q (feet/year)	Head (feet)	Thickness (feet)	Hydraulic onductivit (cm/sec)	Hydraulic onductivity (ft/year)	q (feet/year)	Head (feet)	Thickness (feet)	Hydraulic onductivit (cm/sec)	Hydraulic onductivity (ft/year)	q (feet/year)
10	10	1.00E-06	1.03E+00	1.03	20	10	1.00E-06	1.03E+00	2.06	10	10	1.00E-05	1.03E+01	10.30	20	10	1.00E-05	1.03E+01	20.60
10	20	1.00E-06	1.03E+00	0.52	20	20	1.00E-06	1.03E+00	1.03	10	20	1.00E-05	1.03E+01	5.15	20	20	1.00E-05	1.03E+01	10.30
10	30	1.00E-06	1.03E+00	0.34	20	30	1.00E-06	1.03E+00	0.69	10	30	1.00E-05	1.03E+01	3.43	20	30	1.00E-05	1.03E+01	6.87
10	40	1.00E-06	1.03E+00	0.26	20	40	1.00E-06	1.03E+00	0.52	10	40	1.00E-05	1.03E+01	2.58	20	40	1.00E-05	1.03E+01	5.15
10	50	1.00E-06	1.03E+00	0.21	20	50	1.00E-06	1.03E+00	0.41	10	50	1.00E-05	1.03E+01	2.06	20	50	1.00E-05	1.03E+01	4.12
10	100	1.00E-06	1.03E+00	0.10	20	100	1.00E-06	1.03E+00	0.21	10	100	1.00E-05	1.03E+01	1.03	20	100	1.00E-05	1.03E+01	2.06

NEW SUBAREA	DEPOSITIONAL ENVIRONMENT	STRATIGRAPHY AQUIFER UNITS	SOURCE(S) OF RECHARGE	HYDROGEOLOGIC BASIS	BOUNDARIES	CURRENT CONDITIONS
PAJARO	Alluvial/Fluvial	Alluvium, Upper and Lower	Pajaro River Infiltration	Source of Recharge	N- Pajaro River	Water levels in 50 % of area below sea level
		Aromas	Local Infiltration	Depositional Environment	W- Pacific Ocean	Localized elevated Cl and NO3 ion concentrations
		Purisima	Minor Inflow from Highlands		E- County Line	Seawater intrusion
					S- Highlands Subarea	Falling water levels/Storage Depletion
SPRINGFIELD	Terrace Deposits on	Terrace Deposits	Local Infiltration	Hydraulically Isolated	N- Pajaro Subarea	Water levels in 80 % of area below sea level
	Fluvial/Eolian/Eustuarian	Aromas	Seawater Intrusion		W- Pacific Ocean	Localized elevated Cl and NO3 ion concentrations
		Purisima	Possible Inflow from Highlands		E- Elkhorn Slough	Seawater intrusion/infiltration
					S- Elkhorn Slough	Falling water levels/Storage Depletion
HIGHLANDS	Fluvial/Eolian/Estuarian	Aromas	Local Infiltration	Depositional Environment	N- Pajaro Subarea	Water levels in 30 % of area below sea level
		Purisima	Minor inflow from Granite Ridge	Source of Recharge	W- Elkhorn Slough	Localized elevated Cl and NO3 ion concentrations
			Minor Streamflow Infiltration		E- Granite Ridge Subarea	Seawater intrusion/infiltration
					S- Salinas Basin	Falling water levels/Storage Depletion
GRANITE RIDGE	Onlap of Aromas on	Aromas	Local Infiltration	Shallow Bedrock	N- Highlands Subarea	Localized elevated Cl and NO3 ion concentrations
	Bedrock	Weathered Granite			W- Highlands Subarea	Seawater intrusion
		Fresh Granite/Tertiary Sed.			E- County Line	Falling water levels
					S- Highlands Subarea	Limited Storage

SUMMARY OF PREVIOUS REPORTS

Investigator / Title	Date	Study Area	Area (acres)	Agricultural Demand (acre-feet)	M & I Demand (acre-feet)	Total Demand (acre-feet)	Recharge (acre-feet)	Storage (acre-feet)	Overdraft (acre-feet)	Recharge Rate (inches/year)	Sea Water Intrusion (acres)	Conclusions/Recommendations
State Water Res. Board	1953	Pajaro Valley Floor,							>5,000			Demand exceeds supply
Bulletin 5		Springfield Terrace										Import water
Department of Water	1970	N. County Area	53,543	22,800			4,490	3,000,000	18,300	1.2	2,500	Demand far exceeds supply
Resources (DWR)												Import water
Ground Water N. Mty Cty												Water Quality
R.S. Brown - Draft												Low Well Yields
Department of Water	1971	N. County Area	53,700	26,400	1,900	28,400	4,580	3,900,000	17,000	1.2	2,500	1/2 Springfield Terrace intruded by 1980
Resources (DWR)												Overdraft
Ground Water N. Mty Cty												Import Water
Draft												
Department of Water	1977	N. County Area	53,700	26,500	1,800	28,400	13,000	2,900,000	15,500	1.8	2,500	Springfield Terrace receives no recharge
Resources (DWR)												Explore Purisima Formation
Ground Water N. Mty Cty												Import Water
Final												Reduce Demand
USGS												Explore Purisima Formation
Ground Water N. Mty Cty	1983	N. County Area	59,300	32,800	3,500	36,300	20,600 - 26,500	3,300,000	1,500 - 8,000	4.15 - 5.35		
Anderson-Nichols (A-N)	May-81	Moratorium Area	7,200	596	243	838	922		<83.1>	1.5		Aquifers Poor and Limited
N. County Moratorium Area												Low storage, Low recharge
Ground Water Study												Variable occurrence of ground water
												Total Population no more than 4,000
												Nitrates will continue to rise
Anderson-Nichols (A-N)	Jun-81	Planning Areas	3,381			354	381		<27.3>	1.35		Water importation would be costly
N. County Moratorium		A, B, C, and D										Implement GWMP
Addendum												Implement Land Use Restrictions
Anderson-Nichols (A-N)	1985	Proposed CSA Area	4,073			1,000	713		287	2.1		CSA Feasible
Prunedale Assessment												Nitrate problems widespread
J.M. Montgomery	1993	Springfield Terrace	6,571	4,972	183	5,155	986		4,169	1.8		
Pajaro Model		Carneros Hills	11,447	325	135	460	1,050		<590>	1.1		
		Carneros Creek	11,282	2,974	864	3,837	1,786		2,052	1.9		

APPENDIX I
WATER LEVEL DATA

WATER LEVEL TREND ANALYSIS - MCWRA STUDY WELLS

State Well No	Subarea	70date	70elev	80date	80elev	70 80 wl chg	70 80 Avg	90date	90elev	80 90 wl chg	80 90 Avg	70 90 wl chg	70 90 Avg
13S/03E-04L01	Granite Ridge	12/9/70	281.60	12/19/80	274.40	-7.20	-0.72	1/2/91	277.20	2.80	0.28	-4.40	-0.22
13S/03E-08D01	Granite Ridge	12/9/70	177.60	12/19/80	170.50	-7.10	-0.71	1/4/90	171.20	0.70	0.07	-6.40	-0.32
13S/03E-10N01	Granite Ridge	12/9/70	278.00	12/19/80	277.70	-0.30	-0.03	1/4/90	283.80	6.10	0.61	5.80	0.29
13S/03E-10Q01	Granite Ridge	12/9/70	440.00	12/19/80	437.20	-2.80	-0.28	1/4/90	434.90	-2.30	-0.23	-5.10	-0.26
13S/03E-16C03	Granite Ridge	12/9/70	200.50	12/24/80	186.70	-13.80	-1.38	1/4/90	180.90	-5.80	-0.58	-19.60	-0.98
13S/03E-16J01	Granite Ridge	12/8/71	55.00	12/19/80	50.60	-4.40	-0.44	1/5/90	42.60	-8.00	-0.80	-12.40	-0.62
13S/03E-17F01	Granite Ridge	12/9/70	165.30	12/19/80	163.20	-2.10	-0.21	1/4/90	160.40	-2.80	-0.28	-4.90	-0.25
12S/02E-14N01	Highlands	12/14/71	4.90	12/24/80	-1.20	-6.10	-0.61	12/12/91	-8.40	-7.20	-0.72	-13.30	-0.66
12S/02E-14Q01	Highlands	12/3/70	12.50	12/18/80	6.60	-5.90	-0.59	1/17/90	3.00	-3.60	-0.36	-9.50	-0.48
12S/02E-25A01	Highlands	12/3/70	17.80	12/18/80	12.40	-5.40	-0.54	1/3/90	7.40	-5.00	-0.50	-10.40	-0.52
12S/02E-25K01	Highlands	12/6/71	18.60	12/18/80	11.50	-7.10	-0.71	1/2/91	7.90	-3.60	-0.36	-10.70	-0.54
12S/02E-25N01	Highlands	12/9/70	17.10	12/24/80	12.90	-4.20	-0.42	1/3/90	8.10	-4.80	-0.48	-9.00	-0.45
12S/03E-19M01	Highlands	12/3/70	10.00	12/18/80	4.20	-5.80	-0.58	1/3/90	-2.90	-7.10	-0.71	-12.90	-0.65
12S/03E-31E01	Highlands	12/9/70	18.00	12/16/81	18.00	0.00	0.00	1/3/90	13.80	-4.20	-0.42	-4.20	-0.21
12S/03E-33H01	Highlands	12/3/70	27.60	12/23/80	28.20	0.60	0.06	1/4/90	22.30	-5.90	-0.59	-5.30	-0.27
13S/02E-01K01	Highlands	12/9/70	8.30	12/18/80	2.20	-6.10	-0.61	1/3/90	-5.40	-7.60	-0.76	-13.70	-0.69
13S/02E-02C01	Highlands	12/6/71	5.00	12/18/80	1.20	-3.80	-0.38	1/3/90	-11.50	-12.70	-1.27	-16.50	-0.83
13S/02E-10J01	Highlands	12/17/71	-11.00	12/18/80	-21.60	-10.60	-1.06	1/4/90	-24.20	-2.60	-0.26	-13.20	-0.66
13S/02E-26L01	Highlands	12/7/70	4.20	4/8/80	-15.00	-19.20	-1.92	7/4/90	-12.70	2.30	0.23	-16.90	-0.84
13S/03E-17B01	Highlands	12/9/70	173.60	12/19/80	168.40	-5.20	-0.52	12/12/91	163.50	-4.90	-0.49	-10.10	-0.51
13S/03E-19H01	Highlands	12/9/70	17.30	12/19/80	10.80	-6.50	-0.65	1/4/90	5.90	-4.90	-0.49	-11.40	-0.57
13S/03E-20P01	Highlands	12/9/70	77.30	12/19/80	78.00	0.70	0.07	1/4/90	68.20	-9.80	-0.98	-9.10	-0.46
12S/02E-11E04	Pajaro	11/20/70	6.80	12/17/80	4.00	-2.80	-0.28	12/20/90	-2.00	-6.00	-0.60	-8.80	-0.44
12S/02E-12E01	Pajaro	11/20/70	14.00	12/17/80	7.00	-7.00	-0.70	12/20/90	-4.40	-11.40	-1.14	-18.40	-0.92
12S/02E-15E01	Pajaro	11/20/70	4.90	12/17/80	-0.40	-5.30	-0.53	12/20/90	-6.60	-6.20	-0.62	-11.50	-0.58
12S/02E-16F01	Pajaro	11/20/70	3.30	12/17/80	-0.90	-4.20	-0.42	8/18/91	-28.30	-27.40	-2.74	-31.60	-1.58
12S/02E-16J01	Pajaro	11/20/70	4.10	12/17/80	-2.10	-6.20	-0.62	12/26/90	-10.80	-8.70	-0.87	-14.90	-0.75
12S/02E-16L01	Pajaro	8/15/71	-9.80	12/17/80	-3.50	6.30	0.63	12/26/90	-11.10	-7.60	-0.76	-1.30	-0.07
12S/02E-16Q01	Pajaro	8/16/70	-3.50	12/17/80	-0.70	2.80	0.28	12/26/90	-10.20	-9.50	-0.95	-6.70	-0.33
12S/02E-19A02	Pajaro	11/24/70	0.20	12/17/80	-4.00	-4.20	-0.42	12/26/90	-8.40	-4.40	-0.44	-8.60	-0.43
12S/03E-07J02	Pajaro	11/22/71	20.00	12/17/80	13.80	-6.20	-0.62	12/26/90	-3.80	-17.60	-1.76	-23.80	-1.19
12S/03E-08M01	Pajaro	11/20/70	29.50	12/17/80	19.80	-9.70	-0.97	12/26/90	1.60	-18.20	-1.82	-27.90	-1.39
12S/03E-18D01	Pajaro	11/20/70	20.00	12/17/80	15.00	-5.00	-0.50	1/1/90	5.10	-9.90	-0.99	-14.90	-0.75
12S/03E-18E04	Pajaro	11/20/70	23.70	12/15/81	15.40	-8.30	-0.83	1/4/90	11.30	-4.10	-0.41	-12.40	-0.62
12S/02E-20K01	Springfield	11/20/70	0.50	12/17/80	-5.70	-6.20	-0.62	12/26/90	-16.60	-10.90	-1.09	-17.10	-0.86
12S/02E-20K02	Springfield	11/20/70	-1.00	12/17/80	-6.00	-5.00	-0.50	12/26/90	-12.00	-6.00	-0.60	-11.00	-0.55
12S/02E-29A01	Springfield	11/20/70	4.00	12/17/80	-5.00	-9.00	-0.90	12/26/90	-6.20	-1.20	-0.12	-10.20	-0.51
12S/02E-29N01	Springfield	11/19/70	-0.40	12/17/80	-5.50	-5.10	-0.51	12/26/90	-9.10	-3.60	-0.36	-8.70	-0.44
12S/02E-29R01	Springfield	11/19/70	-2.30	12/17/80	-8.70	-6.40	-0.64	12/21/90	-13.40	-4.70	-0.47	-11.10	-0.55
12S/02E-30M02	Springfield	11/20/70	-1.30	12/17/80	-3.30	-2.00	-0.20	12/26/90	-13.40	-10.10	-1.01	-12.10	-0.60
12S/02E-30N01	Springfield	11/26/70	-2.30	12/17/80	-3.10	-0.80	-0.08	12/26/90	-7.70	-4.60	-0.46	-5.40	-0.27
12S/02E-31C02	Springfield	11/20/70	-1.00	12/17/80	-5.00	-4.00	-0.40	12/26/90	-13.70	-8.70	-0.87	-12.70	-0.63
12S/02E-31K01	Springfield	11/19/70	-0.20	12/17/80	-3.20	-3.00	-0.30	12/21/90	-5.90	-2.70	-0.27	-5.70	-0.29
12S/02E-32C01	Springfield	11/19/70	-2.40	12/17/80	-7.50	-5.10	-0.51	12/21/90	-12.30	-4.80	-0.48	-9.90	-0.50
13S/02E-04F01	Springfield	11/19/70	-1.70	12/17/80	-4.70	-3.00	-0.30	12/11/91	-11.70	-7.00	-0.70	-10.00	-0.50
13S/02E-04K01	Springfield	11/24/71	-2.40	12/17/80	-5.70	-3.30	-0.33	12/11/91	-8.50	-2.80	-0.28	-6.10	-0.30
13S/02E-05M01	Springfield	11/19/70	-4.00	12/17/80	-8.50	-4.50	-0.45	12/21/90	-9.30	-0.80	-0.08	-5.30	-0.27
13S/02E-06C01	Springfield	11/19/70	2.00	12/17/80	0.20	-1.80	-0.18	12/21/90	1.10	0.90	0.09	-0.90	-0.04
13S/02E-06E03	Springfield	11/19/70	4.60	12/17/80	-1.40	-6.00	-0.60	12/21/90	-11.50	-10.10	-1.01	-16.10	-0.80
13S/02E-06R01	Springfield	11/3/71	6.60	12/14/81	-5.50	-12.10	-1.21	12/21/90	-8.30	-2.80	-0.28	-14.90	-0.75

Subarea	AvgOf70 80 Avg	AvgOf80 90 Avg	AvgOf70 90 Avg
Granite Ridge	-0.54	-0.13	-0.34
Highlands	-0.56	-0.54	-0.55
Pajaro	-0.42	-1.09	-0.75
Springfield	-0.48	-0.50	-0.49